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Original Communications.

*ERGOT ASEPTIC.**

BY E. M. HOUGHTON, PH.C., M.D.,

Lecturer on Experimental Pharmacology, Detroit College of Medicine; Member of the American Medical Association, etc.

Many attempts have been made to isolate the active constituents of ergot, or to produce a satisfactory preparation of the drug for hypodermic administration. Owing to the fact that pharmacologists thus far have not been able to agree upon what should be considered the active constituents of ergot, and the great difficulty of isolating the chemical constituents already studied, it seemed to me best to endeavor to obtain a preparation which would represent as nearly as possible the activity of prime samples of ergot, rather than to attempt to obtain any of the constituents of the drug in pure form.

It is not necessary to mention the importance of having a reliable preparation of ergot for hypodermic administration always on hand when prompt action of the drug is desired. Especially desirable is this in obstetric practise, since it so frequently happens that at the critical moment the patient is vomiting, or the stomach is otherwise not

*Read before the Michigan State Medical Society, Detroit, May 6, 1898.

in condition to absorb the drug when administered by the mouth.

It is a well known fact that much of the crude ergot, and its preparations, on the market vary very greatly in strength, or may be entirely inert; consequently it seemed advisable to adopt some method of physiological assay. Having this in view, various methods of determining from physiological experiments the real activity possessed by ergot were investigated. I finally decided to adopt the reaction manifested in roosters when fed with this drug. From times prehistoric it has been observed that in fowls, swine, and other animals, as well as man, fed with ergotized rye, or with bread prepared from the flour of such grain, for a considerable length of time, the poisonous action of the fungus is frequently manifested by gangrene and sloughing of the peripheral parts, as the comb of fowls, ears of hogs, and ears, nose, fingers and toes of man. Two particular types of ergot poisoning have been observed in man, viz., ergotismus gangrenosus and ergotismus spasmodicus. Kobert, and his pupil Grünfeld, were the first to employ the method of feeding ergot to roosters in order to determine the activity of the crude drug, or of the products isolated from it. However, these investigators employed the reaction only for experimental purposes. It seemed to me, after careful investigation, that it would be advisable, and of vastly more importance to medical practitioners, to employ this reaction not only as a check on experimental work, but as a means for determining the active properties of the crude ergot before its manufacture into the various pharmaceutical preparations, and to test the completed preparations by the same means. With this end in view I have examined during the past three years several hundred samples of the crude drug as it appeared upon the American market, and finished preparations taken from the druggists' shelves. Many of the samples were almost inert, while the remainder varied greatly in activity. Indeed, not long since I had occasion to reject several samples of the drug which were forwarded to me for examination, the aggregate quantity represented by them amounting to over 20,000 pounds. This method of testing was employed also by Jacobi last year in an elaborate experimental research. My experience leads me to conclude that not more than from fifty to seventy-five per cent. of the drug, or its preparations, offered for sale is suitable for medicinal use.

In taking up the study of ergot aseptic I shall present the views of some of the leading pharmacologists who have made extended researches on ergot. It has been shown that the fungus contains acid salts of potassium, sodium, etc., and various organic constituents, as coloring matter, fats, methylamine, etc. These several constituents are of little importance if contained in preparations designed for internal administration, since none of them are physiologically active, but they may be a source of irritation when injected subcutaneously. Pharmacologists in general agree that ergot contains at least three active constituents, viz., ergotinic acid, sphacelinic acid, and cornutin. Ergotinic acid (the impure form of which is known as sclerotinic or sclerotic acid, and combined with mannin is known as scleromuscin) is a glucosidal body, readily soluble in water but almost insoluble in alcohol; it decomposes easily under bacterial or chemical influences. Consequently, when taken internally in the various preparations of the drug it is quickly split up by the processes of digestion, or by bacteria contained in the alimentary canal. Dragendorff and Podwyssotzki were the first to call attention to this constituent, and claimed, because they found that it stopped the laid-bare frog's heart in diastole, that it was the active constituent to be depended upon for the production of ergot effects. The later work of Kobert, his pupil Grünfeld, and others, has shown that it has no influence on the uterus, not even when gravid. Since it is decomposed and not absorbed from the alimentary canal, except possibly in the minutest quantities, it is not objectionable when contained in preparations for oral administration, but is to be especially guarded against in fluids designed for hypodermic use, since when administered in this manner it is slowly absorbed into the system — in fact (according to Kobert), it acts as a long-irritating foreign body, frequently resulting in abscess. As much as three per cent. of sclerotic acid may be obtained from some of the preparations of ergot on the market. I will add several volumes of strong alcohol to this fluid extract of ergot, and you can better appreciate this fact, since the voluminous precipitate thrown down consists almost entirely of this constituent. When subcutaneously injected in a very dilute condition, sufficient quantities may be absorbed to produce the general symptoms noted when the drug is introduced directly into the intravenous system — that is, the irritability of

the central nervous system is lessened. The action of ergotinic acid on the spinal cord is manifested by paresis, weakness of the limbs, etc., large doses producing complete motor and finally sensory paralysis. Blood-pressure is also lowered, from the action of the acid on the vasomotor centers, while its sedative action on the brain is manifested by stupor.

I have repeatedly confirmed these statements by subcutaneous and internal administration of the ergotinic acid to roosters, and to pregnant animals in various stages of gestation.

Ergot affords one of the many instances where, possibly by a wise provision of Nature, a crude drug contains active constituents having antagonistic actions. Sphacelinic acid, which is also known by the names of sphacelotoxin and sphacmotoxin, is a resinous substance almost entirely insoluble in water, but readily soluble in alcohol. It has not been obtained in a pure condition, as it is very easily decomposed by chemical manipulations. It is held that this substance is responsible for the ergotismus gangrenosus. This constituent was first obtained by Kobert, and later extensively studied by Grünfeld, who concluded that while it had marked pharmacologic properties it could not be used therapeutically. This opinion, however, was disputed last year by Jacobi, who holds that the active constituent of ergot is the nitrogen-free resin, sphacelotoxin, which occurs in the drug in combination with basic substances, especially with secalin and ergo-chrysins. Jacobi carried out many extensive experiments upon fowls and pregnant animals, the results of which seem to prove that his claims are correct. Grünfeld found that the gangrene of the peripheral parts caused by large doses of sphacelinic acid is due partially to a local action upon the walls of the arterioles, and partially to a direct action on the vasomotor centers, resulting in a narrowing of the caliber of the vessels, followed by the pouring out of a hyaline substance, this condition finally terminating in complete paralysis of the walls of the arterioles; peristalsis of the intestine is markedly increased, ulceration of its walls may occur, and extravasations into the mesentery may also be noted. Sphacelinic acid, because of its direct stimulant action upon the motor centers of the central nervous system, and its local action on the vessels, produces a marked rise in blood-pressure. Also from its action on the motor centers and its local action on unstriped muscle fiber, it produces tonic contractions of the uterus.

The third constituent, the alkaloid cornutin, is believed by Kobert to be the active constituent desired. But this seems scarcely possible, since the best crude drug contains only a fraction of one per cent. of it. Tanret held cornutin to be a decomposition product of ergotinin, while Jacobi, as already mentioned, believes that we should ascribe the therapeutic value of the drug to the sphacelinic acid contained. Jacobi, however, also thinks that cornutin may in part explain the oxytocic action of ergot. Cornutin possesses very weak basic properties. Like sphacelinic acid, it is only extracted by an alcoholic menstruum. Its salts are somewhat soluble in water. Cornutin is said to be the cause of ergotismus spasmodicus. Mainly because of its irritation upon the medulla, it produces in mammals increased blood-pressure, slowing of the pulse, etc., large doses resulting in tetanic convulsions. However, very small doses, as claimed by Kobert, produce, through action on the motor centers of the lumbar cord, strong clonic contractions of the gravid uterus, simulating those observed during the normal act of parturition. Especially do these results occur when cornutin is administered subcutaneously.

In general we may conclude from what has already been said that the desired action of ergot is due to the pharmacologic properties of the contained sphacelinic acid and cornutin, or their salts. It appears well-nigh impossible to separate these constituents, since the solubilities of both are much alike, but for practical purposes this is of little importance, as they have much the same physiologic action and can be readily separated from the sclerotic acid, which has an opposite action.

With the purpose of obtaining a preparation of ergot which should contain a large percentage of sphacelinic acid and cornutin and as small quantities of sclerotic acid and inert substances as possible, the following experimental work was carried out:

The crude drug employed was carefully standardized by feeding to cocks and noting the reaction manifested by the comb and wattles. The selected drug was ground and divided into a large number of small parcels, which were then percolated with various solvents. The several extracts obtained, and the exhausted drug left in the percolators, were each tested by feeding to fowls, and the results compared. The men-

struum found to produce an extract having the most marked physiologic properties was selected. This menstruum, however, extracts a certain amount of sclerotic acid, which, while it is not harmful (as already stated) for internal administration, was removed from the preparation designed for subcutaneous injection. Since the free acids and the acid salts contained in a fluid extract of the drug are very irritating when administered hypodermically, they were neutralized. The fluid was finally concentrated until one part represented two parts of the crude drug. The finished product was found to be almost entirely non-irritating, but would not keep, owing to the ready decomposition of its constituents. Instead of using alcohol or seeking out some antiseptic which would preserve the fluid, it seemed much more desirable to have the fluid placed in containers holding sufficient for one injection, the filled and sealed containers to be then sterilized. The results were entirely satisfactory. The completed ergot aseptic consists, therefore, of a non-alcoholic fluid preparation of ergot from which the inert substances and ergotinic acid have been removed. The irritating acids and acid salts have been neutralized, the finished product appearing in small glass bulbs, each holding sufficient for one injection. The bulbs, after being filled, and the necks sealed, are then rendered completely sterile by fractional steam sterilization. It is now over a year since the bulbs which I have here were filled, and you see the contained fluid is even now perfectly clear and transparent. A recent test has shown that the contained fluid has retained its physiologic properties apparently unimpaired.

Of far more importance to the physician than the chemic and physical properties is its physiologic action. I have carried out many experiments on various kinds of animals — dogs, cats, rabbits, etc. — which show conclusively that ergot aseptic has the active properties of sphacelinic acid and cornutin. Blood-pressure is raised; peristalsis of the intestine is increased when intravenous injections are administered to dogs and rabbits; gangrene of peripheral parts occurs when it is given to cocks, and expulsion of the contents of the uterus follows when ergot aseptic is administered subcutaneously or internally in proper doses, to pregnant animals at various periods of gestation.

Thus far the clinical results reported by those who have employed it in practise indicate that it is non-irritating and produces prompt and efficient results. Since I am not engaged in obstetric practise I shall leave the final decision of the therapeutic value of ergot aseptic in the hands of the medical profession at large.

However, before closing I find it incumbent upon myself to again state that it is my opinion after several years' careful testing of ergot by pharmacologic methods, that crude ergot, or its pharmaceutical preparations, should never be employed for medicinal purposes except they be carefully tested for physiologic properties, as the chemist is unable to tell whether this drug and its preparations are active or inert. And for the purpose of testing the crude drug ergot, or any of its pharmaceutical preparations, the reaction noticed in roosters seems to be the most reliable and most readily carried out. The blackened and gangrenous appearances produced in the comb and wattles of fowls is well shown in the accompanying colored plate, which is an exact reproduction of an oil painting made from life.

To my colleague, Mr. J. M. Francis, is due the credit of having overcome the pharmaceutical difficulties in the way of manufacturing ergot aseptic.

THE TREATMENT OF HEMORRHAGE IN TYPHOID FEVER.

By H. G. McCormick, M.D.,
Williamsport, Pennsylvania.

In the treatment of hemorrhage in typhoid fever it has long been taught that opium, morphine and acetate of lead were the remedies to be given in such doses as to paralyze the bowel and bind up their contents in such a way that no movements of the bowels could possibly take place. This treatment was advocated on the theory that the opium would paralyze the vasomotor nerves of the alimentary canal and destroy the peristaltic movement, putting the bowel, as it were, in a splint. The acetate of lead was probably given for the reason (if those who advocated it reasoned) of its astringent effect to bind up what secretions, if any, were acting after the opium had gotten in its work. This plan of treatment was generally pursued in the treatment of all bowel troubles in which diarrhea was present, when the medical profession treated symptoms, rather than diseases — when pathology was almost unknown — before bacteriology had been conceived — when the physiological action of drugs was a myth.

Yet many of the so-called modern works of practise have kept copying these same antiquated plans of treatment of this class of diseases. It certainly should be more respected for its age than for its logic. Emerson says: "Of no use are the men who study to do exactly as was done before, who can never understand that to-day is a new day."

Opium does control peristaltic action, and acetate of lead does bind up the secretions, but do you want to produce these conditions in a case of hemorrhage in typhoid fever? What conditions are present when a hemorrhage of sufficient amount to require treatment has occurred? The muscles are relaxed, the heart's action is weakened, and the whole body is depressed. Is it likely, when every other muscle and set of muscles have lost their tone, and from want of nourishment have lost their power of contraction, that the muscular fibers of the intestines have not suffered from the same cause? From the explicit instructions given to put the bowel at rest with opium one would suppose that all the muscular force of the body had suddenly been concentrated in the muscles of the bowel when a hemorrhage occurs in that part of the body. A little thought will convince you that after a hemorrhage the peristaltic action of the bowel is suspended or abolished in proportion to the amount of blood lost and the effect this has produced upon the body as a whole. Is there any necessity for the giving of a drug to overcome a condition which does not exist? In addition to opium not being of any use, it does positive harm. It dries up every secretion of the alimentary canal from the mouth to the anus. The secretion from the liver which is necessary to carry on the process of digestion, and which furnishes to the bowel the best antiseptic, is suppressed; the secretions from the whole glandular system along the route have been dried up; and you must, of necessity, have decomposition of the contents of the bowel—forming gas and poisonous products, which are absorbed into the system, adding to the already serious trouble new complications to combat.

Tympanites is never a favorable symptom in typhoid fever, and this is especially true in cases where hemorrhages have occurred. The hemorrhage was caused by the rupture of a blood-vessel in an ulcer of Peyer's gland. Will you not add to the probability of another hemorrhage by distending that bowel with gas? and if the ulceration has any depth, will you not further add to the danger of the case by putting sufficient pressure on the bowel to cause perforation and death?

After a hemorrhage has taken place the blood as a rule is not all expelled and part remains in the colon or at the ileocæcal valve. Blood is a fruitful soil for the development of bacterial growth, and if allowed to remain aids in the further development of the poison. Do you think any harm will come to the patient by these clots being washed out? Instead of giving opium or any other drug to bind up the bowels and secretions, I have been in the habit for the past few years of following an entirely opposite course. I give something to move the bowels, generally a saline, and wash out the colon with ice-water. By this plan I clear out the alimentary canal, carry off the clots of blood and whatever other substance there may be—relax all tension upon the bowel—and I have not had much secondary hemorrhage to contend with.

The bowels should always be kept open in typhoid fever. In a discussion of this subject at the last meeting of the American Medical Association, a very prominent physician made the statement on the floor that constipation in typhoid fever was a good thing, and that cases with constipation did better than those with diarrhea. Now I have had a fairly wide experience, yet I have never come across any disease in which constipation was a good condition; and in conversation with a number of physicians who have seen disease in about all its forms and names, not one of them has been able to give me the name of a single disease in which they were willing to say that constipation was a condition to be sought. I have gone to some trouble to consult the works on practise that I have been able to secure, and yet I have not found a single disease in which they were willing to say that constipation was the end to be secured in order that a cure might be effected. That there are mild cases of typhoid fever with constipation any physician who has seen much of this disease will be ready to admit. But are they mild because they have constipation? Is this the cause for their not being severe? Is it not rather a fact that, being mild, there is not a sufficient amount of pathological change taking place in the bowel to cause a diarrhea, and would not these cases be more mild by the bowels being kept open? Are hardened feces a good application to an inflamed and ulcerated bowel? Is there a physician who has a wild enough imagination to make himself believe that

hardened feces are a "God-send" to an inflamed and ulcerated bowel? When will the teaching of such nonsense as this cease?

By the method I have suggested the bowel is kept clean—clean as it can be by the means at our command; the bowel and ulcer are relaxed, no undue pressure is placed upon it; the bowel is at rest, for the hemorrhage has produced this effect, and the patient is given a fair chance to recover.

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*THE STUDY AND TREATMENT OF SOME SERIOUS DISEASES AND THEIR COMPLICATIONS.**

By H. A. Hare, M.D.,
Professor of Therapeutics in the Jefferson Medical College of Philadelphia.

The most difficult task for an inventor is said to be the discovery of what to invent, and I confess that the most difficult part of my task has been to find a topic or topics which would prove of interest to you. I have decided, however, that the consideration of several subjects will not be inappropriate. None of them will be novel, but all of them have a direct bearing on the daily needs of the physician.

The first of these is the procedure to which has been given the name "washing of the blood." I have practised this method so often with success that I feel it is not resorted to with the frequency which its power for good deserves, and its harmlessness and wide scope for application make it a valuable therapeutic aid. The present plan has been evolved by a gradual process till its usefulness is assured, and its technique is so simple that even the most timid may resort to it with confidence. It may be divided into two types—that in which the blood is washed by the direct injection of a normal saline solution into the blood-vessels, and that in which it is given subcutaneously and absorbed from the tissues by the circulatory system. It is at once evident that the latter method is necessarily much more slow in its effects and much easier in performance than is that of intravenous injection; and again, that it is devoid of any danger which may exist in regard to the injection of an air embolus or of some foreign body capable of plugging a blood-vessel situated perhaps in some vital area; or again, of the introduction into the blood stream of some material capable of causing infection.

On the other hand, there are certain conditions in which hypodermoclysis is manifestly of no avail, as for example where the system is in such a state of collapse that the processes of absorption do not go on, or where there is general anasarca, or again where the necessity for relief is immediate or pressing. Let me first, however, speak of the states in which I believe these injections are needed. They have been most highly praised by French clinicians in the treatment of the severe toxic symptoms coming on early or late in the course of the acute infectious diseases such as scarlet fever and similar ailments. In these I have not employed them because I have not met with cases needing this plan of treatment. They are also highly commended in the treatment of the toxemias of sepsis as the result of injuries or surgical interference. Here again I cannot speak of their value from the standpoint of actual experience, because I am not in the habit of seeing surgical cases in these states, although I have employed intravenous injections in two cases to which I was called in consultation long after the surgeons had decided that the condition of the patient was hopeless. The first of these was a man suffering from dry gangrene of the toes of one foot, at first thought to be due to Raynaud's disease, then decided to be a senile gangrene, and finally found to be associated with diabetes mellitus. In this instance the patient developed simultaneously a gradually deepening coma with a rapid spread of the gangrenous process to the calf of the leg, where it was a moist gangrene. Within twenty-four hours after the coma began it was so manifest that recovery was impossible with the use of ordinary measures that I decided to do an intravenous injection of normal saline solution, and did so in the ward by the light of a candle and with no better apparatus than an ordinary rubber fountain syringe and a glass tube to fit into the vein. The patient speedily developed a severe rigor, then broke out into a profuse sweat, and when I left him immediately after the operation I told the family he would not survive the night, as his situation seemed most critical. The next noon I was surprised to find him entirely conscious, free from pain, and able to state that he felt very well. The coma, however, returned in the next twenty-four hours; the intravenous injection was not repeated, and he died shortly after. As the patient had become comatose

* Part of the address in Medicine before the Nebraska State Medical Society, Omaha, June, 1898.

primarily in the absence of his wife and family, his return to consciousness was considered by them little short of miraculous, and they were grateful for his ability to give final directions to them.

The second case I have already reported elsewhere. It was that of one of the most noted scientists this country has produced, who after years of prostatic trouble finally died of septicemia arising in his bladder and kidneys. When I saw him in consultation he was manifestly a dying man, and so ill that any surgical interference was impossible. As the only chance of possible temporary arrest of the downward progress of the case an injection was agreed to. Temporary improvement followed its use, but he speedily sank and died.

The most successful case which I have had from the use of this treatment in uremic coma is that of the father of a physician who called me in consultation when partial coma had lasted for over a week. The urine was very scanty, albuminous, and passed involuntarily. The breathing was stertorous and labored; the face dusky and cyanotic. His condition was so grave that all hope of his recovery had been given up, the more so as he had been refused life insurance ten years before because of renal disease. I advised intravenous injection. It was accepted as the only chance, but with the grave doubt of its doing any good. Immediately after the operation the patient had a severe rigor, partly due to the fact that the fluid injected was not warm enough. A profuse sweat now began, and he speedily became conscious. He has entirely recovered in that this occurred nearly eighteen months ago, and he has attended to his affairs since then. The patient seemed to every one who saw him as if raised from the dead.

Any one inclined to be critical may make objections to attributing the saving of this patient's life to this measure, first, because we sometimes see uremic patients make surprising recoveries, and second, because it is undoubtedly a fact that no means we can use can restore a damaged kidney. The reply to this is that damaged kidneys sometimes break down after exposure or other cause, and the patient becomes uremic and dies when if his life could be prolonged the remaining healthy renal cells would recover from their acute disorder to perform their function properly.

I could cite other instances of a character somewhat like that just detailed, but time forbids. I can only add that in one particular case a man who came under my care semi-conscious after the injection became entirely clear mentally, and volunteered the fact that he was free from headache for the first time in six weeks. Another man found unconscious in his bedroom in a hotel and admitted to my wards absolutely comatose recovered sufficiently after the injection to tell his name and give his brother's name and address before again becoming comatose. On the other hand, I have had cases in which the treatment failed in the sense that no marked improvement occurred, but in every case in which I have used the method there has been some sign of mental clearing up.

I have used the method in one case of diabetic coma without result. The deaths under its use have been numerous simply because the condition of the patient in severe uremia or other intoxication is necessarily one which is followed by fatal results, and in the presence of such hopeless conditions a few lives saved, if only for a short time, is worthy of careful consideration. Increasing experience with this method of intravenous injection has led me to the following conclusions as to the treatment of patients suffering from uremic attacks:

Use hypodermoclysis provided the symptoms are not pressing and there is no trouble with absorption because of edema; when the danger is pressing, or edema is present even in a very slight degree, use intravenous injection.

In a large proportion of cases the patient should be bled, particularly if nervous excitement or convulsions are present or threatened, because this will relieve cerebral congestion, aid in the elimination of toxins, and aid in the absorption of the fluid from the subcutaneous tissues; or if intravenous injections are used, it will make room, so to speak, for the artificial serum. I believe this is of importance, unless the circulation is evidently very feeble from profound debility and anemia.

Again, it is of great importance to aid sweating by the use of the hot pack, using care that heat-stroke is not produced; but this again should not be used unless the patient fails to sweat, nor if he has a feeble heart.

Finally the saline solution should be carefully prepared, and if possible common salt alone should not be employed. The following formula suggested by Locke, of Boston, is prepared in concentrated sterile

form by Parke, Davis & Co., so that one ounce added to a quart of distilled and sterile water makes a solution which will at once fill the vessels, wash the blood, and support the circulation:

Calcium chloride, 0.25 Gm.;
Potassium chloride, 0.1 Gm.;
Sodium chloride, 9.0 Gm.;
Sterilized, distilled or tap water, sufficient to make 1 liter.

The apparatus I have used is made up as follows: A glass container, such as is used for irrigation purposes in antiseptic surgery, is set in a frame, in order that it may stand on a table rather than be hung against the wall. To the bottom of this container is attached four or five feet of red Para rubber hose, and in the end of this rubber hose is inserted a plain glass cannula; a clip is placed upon the hose, in order that the flow may be controlled, and the cannula and tube which have been attached to the blood-vessel are joined to the tube running from the irrigator at the moment when they are both completely filled with liquid, so that no globule of air will be contained in the tube. This is most easily accomplished by tying the cannula in the vein of the arm and then filling it and its attached rubber tubing with some of the saline solution by means of a pipette.

Finally, let me say that I have used hypodermoclysis in hemorrhage in typhoid fever with the most happy results. It is far less disturbing than intravenous injection, the system takes up the liquid as it is required, and syncope disappears. An ordinary hollow needle may be attached to the tube already described for this purpose.

The solution should be warmed to a temperature of about 100° F. The dose ranges from one-half to one liter, and the frequency of the injections varies according to the exigencies of the case.

The Treatment of Typhoid Fever. — This commonplace title is nevertheless one which will interest those physicians who come in contact with this malady. That the body of the profession are not satisfied with the methods generally employed is proved by the numerous so-called plans of treatment and by the fact that these plans often wander far afield from the correct ideas of advanced pathologists as to the causes and morbid anatomy of this disease. Nor is this continual presentation of new plans of treatment due solely to this cause, for it also arises from the fact that on the one hand a physician discouraged by a high mortality among his typhoid fever patients goes on a still hunt for new methods, or more commonly has a series of cases of mild infection which recover under the new management and are credited to it, when in reality the recovery is dependent upon the benign character of the attack.

It is not my intention to discuss the use of the various plans of treatment which have been brought forward. Only one of these will be presented for consideration, namely, that by the Brand method, which possesses an indorsement in the way of statistics that cannot be equaled by statistics collected in regard to any other plan. Very extraordinary results are claimed for it, and without doubt its value is great, for it certainly modifies many of the most alarming symptoms and the very symptoms which it is difficult to combat under other methods of therapy. Thus it is rare to meet with the advanced nervous exhaustion, the subsultus tendinum, and the muttering delirium in patients who are properly bathed, and circulatory disorder both local and general are not generally met with. Local congestions do not occur, delirium is put aside, and renal and dermal secretion is maintained. All these things are most desirable, and when it is found that the death-rate is also decreased it is not to be wondered at that there are physicians here and abroad who believe that in the Brand bath a panacea for this malady is at hand. It is, however, an old story with the medical profession that plans of treatment are lauded to the skies, remain popular for a given space of time, and then find the level of their real value. The very enthusiasm of the advocate speedily produces a large number of statistical reports from which the more conservative members of the profession may derive information, and often by the excesses of enthusiasm a plan is finally regarded by the body medical as lacking when in reality it is competent if used properly. The course of any new method of therapy is therefore a curve resembling some temperature charts; at first it rises to a dangerous height, then by reason of its primary violence sinks to a point below its ordinary or normal range, and then as the conditions are readjusted it rises to its proper level, along which it runs its course. It is while it is on this normal level that we can resort to a new plan with safety, for now it is possible to understand how it does good, and to grasp its limitations. The primary rise attracts analytical attention

and there is speedily a definite estimation of real value.

In an article recently published in the THERAPEUTIC GAZETTE myself and Holder have shown that the mortality of typhoid fever is decreasing in all parts of the world, a fact also pointed out still more recently in the editorial columns of the *Journal of the American Medical Association.* While it is true that in certain local epidemics the mortality approaches its old severity of about twenty-five per cent., it is a fact that the general average under every form of treatment is about nineteen per cent. at the most, and very often only eight per cent. Again, it is well pointed out by myself and Holder that good nursing and the avoidance of treatment, except for the purpose of modifying the severity of the malady, result in a marked reduction in the mortality. It is important therefore to deduct from the credit given to the Brand bath the important fact that the mortality is decreasing and that the attentive nursing associated with the bath is effective.

These facts are not adduced for the purpose of encouraging those who have not the courage to resort to the bath treatment, but rather that we may obtain definite views as to precisely how useful the bath is. It is not possible in this country to obtain the low death-rate reached by Brand in German Military Hospitals in times of peace, when everything favors any rational plan of treatment. As a matter of fact the experience of physicians to general hospitals all over the world shows that the death-rate is between seven and eight per cent. under the Brand method, and it would seem probable that the saving of life caused by the use of the bath in itself equals about two or three per cent. The saving of three out of every hundred patients would therefore seem in itself to be a trophy well earned by the tubbing plan of treatment, and no one who is acquainted with the statistics of this method or the clinical character of the cases can fail to gladly credit it with this benefit. Cabot, of Boston, has well said in a recent paper that the fault with all definite plans of treatment is that they are supposed by their followers to be the best, and therefore the physician does not look for anything better or for any modification which will remove faults and still possess all the advantages.

It would seem, therefore, that the faults should be first pointed out, for the manifest advantages have already been discussed. The first fault is in one sense theoretical, in another practical, namely, that no routine method of treatment is rational, for the skilful physician knows that every case should be a law unto itself. In other words, on the face of it, any plan which professes to be of value for all cases does not exist as a fact. When a universal plan of treatment is developed the skill of the physician will no longer be of any service. There must of necessity be states in which the bath is all-powerful for good, and others in which many conditions distinctly contraindicate it. Such conditions may be great cardiac feebleness, the advance of the disease to such a point before the patient comes under observation that his system is too feeble to react to the bath, and the presence of hemorrhage or perforation.

Another disadvantage in the routine use of the bath at 70° is the fact that we are subjecting the patient to a severe measure when perhaps another milder one will do, and it is the duty of the physician not only to prescribe a mode of treatment but to see to it that it suits the needs of his patient.

Before we can decide what cases need to be tubbed it is necessary that we understand the physiological effects of the bath. Unfortunately, very few of those who use the routine bath method do so with clear ideas of how it acts, and no one in this country so far as we know has ever taken the trouble to study with care the effects produced upon the physiological processes in the body by the full bath. One of the eminent therapeutists in this country has recently expressed his belief that the good derived from the bath is solely due to the reduction of fever. On the contrary, those who have used the bath and have made its study a constant object of observation have again and again asserted most positively that the fall of temperature is by no means the most efficient function of the bath, and they are unanimously agreed that its chief function is to produce reaction or the reflex and direct effects following the application of cold to the skin. These effects are most valuable and important.

The general temperature is often not much affected by the bath and Baruch states he has often seen the mouth temperature after a bath of 65° in typhoid fever reduced to normal while the rectal temperature was two degrees above normal. This is also stated by Liebermeister (Handbuch der Path. und Therapie des Fiebers, p. 102).

*REMARKS ON THE SYMPTOMATOLOGY AND THERAPEUTICS OF ARTERIAL DEGENERATION.**

By Joseph Collins, M.D., of New York,
Professor of Nervous and Mental Diseases in the Post-Graduate Medical School; Neurologist to the City Hospital.

The writer appreciates the indefiniteness of the title arterial degeneration, but he is unable to encompass the remarks which he desires to make under any other single caption. If the morbid anatomy or mode of development of vascular degeneration were under discussion it would not be difficult to consider the subject in the classical, and at the same time logical, way. But it is not my object to discuss the subject from the standpoint of the master, but rather to put before you for your consideration some ideas, or fancies, concerning the pathogenesis of certain varieties of arterial degeneration which seem to be more plausible the longer I ponder them. In addition, I wish to relate a few clinical histories which shall go to show that although symptomatic manifestations of this morbid condition are extremely disparate, recognition of the underlying disease is the *sine qua non* of their successful treatment. Finally I desire to emphasize the necessity of early, persistent and rational treatment. A word of apology might be appropriate for reading a paper on arterial degeneration before a neurological society, but as I am one of those who look upon neurological practise as a very important part of internal medicine, I shall not offer it.

The manner in which I shall attack the subject will be quite the reverse of the plan usually employed when writing on a given subject or disease. I propose to point out that as yet vascular degeneration, using the term in the broadest sense, is devoid of anything like a definite symptomatology. It is for this reason that separate and individual consideration of it is not often given in text-books on the practise of medicine, on neurology, and on applied therapeutics. The clinical features of vascular degeneration vary so enormously in different cases that the phenomena in many instances are supposed to constitute definite diseases, which are allotted individual description in our text-books, such for example as chronic contracted kidney, vertigo, encephalomalacia, etc. Viewed from a pathological standpoint there seems to be more well defined convictions as to the status of vascular degenerations. Varieties have been described, associated with certain diseases, such as syphilis and tuberculosis, while others have been allotted the designation "premature vascular senility." The pathology of so-called atheroma of the blood-vessels is as little understood to-day as it was a generation ago, albeit the morbid anatomy of the condition is very well known. The pathological state known as arterial sclerosis, or arterio-capillary fibrosis, still offers much difficulty in its pathological interpretation.

I shall not attempt to say anything of syphilitic degeneration of the blood-vessels, which is almost always an endarteritis, except those cases in which the degeneration is dependent upon gummatous infiltration of the vessel wall, nor shall I speak of atheromatous changes incident to senility.

The theories that have so far been proposed to explain arterio-capillary fibrosis are all of them insufficient, because we continually encounter cases which cannot be interpreted according to any of them. One of the most powerful factors in the genesis of the disorder is a something which we call hereditary influence—a tendency for those who have functional disease of any kind to endow their progeny with the susceptibility to develop similar or dissimilar ailments. What the inherent shortcoming is cannot be stated positively, but I venture to believe that it will some day be found to stand in definite relationship to that system of the body which presides over the growth, the development, and the full maturation of the body and all its tissues, viz., the sympathetic nervous system. I cannot state the many facts and analogies that support this view, as Dr. Joseph Fraenkel and myself intend to do in a forthcoming publication, but it has seemed necessary to make statement of this belief, in order to make my views concerning the pathogenesis of arterio-capillary fibrosis more clear.

The immediate causation of arterio-capillary fibrosis is attributed to gout, rheumatism, alcoholism, indigestion, exposure, overwork, enervating, depraving influences and environment, and to many other analogous factors. Every one admits that some of these conditions are oftentimes to be observed in the antecedent history of a patient who develops arterio-capillary fibrosis. But none of them need be present. In fact, oftentimes search for any of them will be in vain. It is

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possible that sex variations in the liability to, and the use of, these injurious agencies may explain the fact that the disease is enormously more common in males than in females, and very much more common in degenerate races such as the negro than in those that have reached a more advanced evolutionary stage. But the fact is this selective variation in races and sexes needs far more comprehensive handling than it has heretofore received.

Man is as old as his vessels and woman is as old as she looks is more truthful than poetic. If one observes those about him in the street, in the railway car, in the church or the theater, he cannot but be impressed by the fact that for every woman he sees who has such suggestive marks of arterial sclerosis as tortuous, rigid-looking temporals, features expressive of senility at variance with apparent years, a recession of the fronto-temporal hair line indicating the decession of allotted years, etc.—that for every woman he sees with such signatures he will see ten men. Casual observations thus made are fully borne out by the experience of the bedside and the consulting-room. Why should this be? Is it because men work harder, drink harder, play harder and take less intelligent pleasure and relaxation than their wives and sisters? It may be, but when we look at the matter carefully it verily does not seem that such an answer encompasses the explanation. We know of countries wherein the hardest physical labor is done by women, and of other countries in which riotous living, eating, drinking and indulging is only vouchsafed in part to the male, and yet arterio-capillary fibrosis apparently spares the woman in the case. The explanation of this I shall leave for you to suggest; it surely is worthy of careful thought.

It is not sufficiently recognized that the vast majority of the diseases which the neurologist encounters, aside from diseases of an infectious nature, are of two kinds—those conditioned by functional perversion of the vascular system, and those caused by degeneration of the vascular system. That this is a fact, every worker in the field of clinical neurology will admit. The moral to be drawn from this is to search for the *modus operandi* by which these conditions are brought about. I venture to think that if this is done a clearer conception will be had of many diseases, especially functional ones, that are to-day considered very obscure.

I shall not say anything this evening of functional perversions of the vascular system which are not accompanied by changes in the blood-vessels, but shall limit my remarks principally to arterio-capillary fibrosis.

The theory which seems to me most satisfactory in explaining the pathogenesis of arterio-capillary fibrosis is one that looks upon it as a disorder of the sympathetic nervous system, the vegetative nervous system. We know a great deal about the development and the anatomy of this very important part of the body; we have some information regarding its functions; but we know nothing, or next to nothing, of the phenomena that result from its disease. We are inclined to believe that certain neuroses, dermatoses and trophic states are dependent upon its depravity and disease, but aside from this no rational conception of its functional perversion or organic disease has yet been offered. We find ourselves, therefore, in the very anomalous position of knowing that the sympathetic nervous system is the most important tissue or system of the body, and yet we are entirely ignorant of the conditions that result when injurious factors, single or manifold, interfere with its proper working. Pathologists have neglected it with seeming studious intent. For instance, in those diseases in which there cannot be the slightest doubt that the sympathetic nervous system is the seat of the morbid influence, workers in the field of morbid anatomy have gone through the various tissues of the body with great diligence, and commendable care, but they have left the vegetative nervous system as if it were something apart from the rest of the body and not susceptible to injurious influences. We may cite in proof of this the status of the morbid anatomy of such diseases as diabetes, Addison's disease, and Graves' disease—diseases which time will prove, I venture to believe, to be as closely dependent upon lesion of certain parts of the sympathetic nervous system as typhoid fever is known to be dependent upon a specific form of ulceration of the glands in the small intestines.

One of the most important functions of the sympathetic nervous system is to innervate the cardio-vascular system. The next most important function is to supply the glandular system. These two systems, being extremely interdependent and harmonious, when one is disordered the other is bound to be deranged, and *vice versa*. It is perhaps needless to say that no other kind of nerve fibers, save those

of this system, go to these tissues. The factors that have been enumerated as causative of arterial degeneration, arterio-capillary fibrosis, such as gout, rheumatism, alcohol, indigestion, overwork, and the like, are all operative through the sympathetic nervous system, and the changes which they cause in the blood-vessels are conditioned by perversions of this system. It is an evidence of concentric limitation of the intellectual field to search for the pathogenesis of arterial sclerosis in the products which remain in the system, the result of incomplete metabolism or of defective elimination, and at the same time to neglect the mechanism by which these conditions are brought about. To illustrate my meaning, within the memory of the most recent of us the advent of the physiological chemist, the physician versed in the mysteries of the laboratory, has been hailed as the coming of the interpreter of what are called humoral and diathetic diseases. The hope has been held out that his investigations would illumine the obscurity of their development, and that he would point the way for their prevention. Unfortunately, we are yet awaiting the realization, although he has been studiously at work for a score or more of years. True it is that he has shown, after laborious investigations on the excreta, that certain products of metabolism, particularly of nitrogenous metabolism, are deficient or overabundant in the excreta. In conjunction with the clinicists he has observed that certain outbreaks of disease may coincide with one or the other of these abnormal states, and he jumps at the conclusion of cause and effect, without taking into consideration that these are but incidents and that the antecedents of such defective metabolism are to be sought in that system which regulates normal metabolic changes, preserves its equilibrium, and manifests changes in the secreta and the excreta when injurious influences pervert its function. If we take, for instance, the enormous amount of work that has been done on what is fallaciously called intestinal asepsis, or intestinal antisepsis, and the system of therapy that has sprung up as a result and ask ourselves, What does it all amount to, what has really been gained? the answer must be, Practically nothing. And why? It is because we have not taken a sufficiently broad and comprehensive review of the forces antecedent to pathological fermentation, to incomplete metabolism, to defective elimination, to partial oxidation, and the like. In short, it is because we have not taken the sympathetic nervous system, the great conditioner of secretion, of excretion, of circulation, and of oxidation, into the question.

A similar arraignment may be made of the hiatus in our knowledge of the pathogenesis of arterial degeneration. The causation of acute inflammation of the blood-vessels, arteritis, and phlebitis, or of chronic inflammation of the blood-vessels, has offered no considerable difficulty, because their causation has been searched for in the blood and in fact are operating directly on the blood-vessels. But non-inflammatory diseases of the blood-vessels are not caused by diseases of the blood, although they are oftentimes accompanied by morbid blood changes, secondary to and coincident with diseases of the blood-vessels. Degenerative changes in the vessels, unless sequential to inflammatory changes, are of slow development, they are not uniform in their distribution, they occur simultaneously in far-apart regions of the body, and they are likely to attack the blood-vessels of organs that are highly functionable. These facts indicate that such degeneration is the resultant of a unity of causation, and search as we may for such unity of causation, we can only find it in the sympathetic nervous system. If we take for instance the relationship of arterio-capillary fibrosis to rheumatism, to gout, to alcoholism—in short, to conditions that cause perversions of metabolism—and attempt to interpret them on any other basis than that which posits primary disorder of the sympathetic nervous system and consequent secondary manifestation of disorder in the blood-vessels, we shall early encounter insuperable obstacles. We cannot, for instance, believe that the physical dissociation of the components of the blood which is evidently at the basis of rheumatism, or the chemical changes in the blood which form the apparent basis of gout, or the presence of ethereal sulphates, uric acid, etc., which are attendant upon chronic intestinal indigestion, exercise a mechanical and irritative influence upon the blood-vessel. If they did, we must needs have a generalized desquamation and endothelial proliferation throughout the vascular system, the same as results in the tubules of the kidney when substances irritant to that organ are excreted, and the tunica intima would be the part primarily diseased; but such is not the case, for in every instance the primary changes are in the media and adventitia.

We can, however, readily see how these dissociated changes in the blood which are

at the basis of gout and rheumatism, these evidences of defective metabolism and excretion, which occur in chronic indigestion, etc., are immediately conditioned by disorder of the sympathetic nervous system, because this system presides over secretion, over excretion, over metabolism, and over vascular regulation. When the chronic intoxicants are present sufficiently to cause any of the diseases enumerated, or when alcohol so exercises its pernicious effect upon the sympathetic system as to overthrow its functional balance, nutritional changes will begin to be manifest in the blood-vessels through the medium of the vasa vasorum supplied by the sympathetic nervous system, and these changes in the media, in the adventitia, and eventually in the interna, constitute the morbid anatomy of arterio-capillary fibrosis.

In the same way are to be explained those cases which result secondary to renal disease, a comparatively small proportion of cases, it must be said, occurring in this way. The poisonous matter which should be excreted by the renal organs remains in the system, and its peccant activity is manifest on the sympathetic system of nerves and through it on the blood-vessels. In other instances, the retained noxious matter is most operative on the cerebro-spinal system to cause the well known symptoms of acute or chronic uremia.

And now, to turn to some of the symptomatic features of arterial sclerosis or arterial degeneration, I shall cite a few cases to show that the clinical phenomena may be absolutely different in one case than in another. In other words, unlike other tissues of the body, which when diseased call forth complexes of symptoms having definite symptomatic foundations which are nearly constant, the symptoms caused by arterio-capillary fibrosis are extremely disparate. The first case that I shall cite is one that may be labeled "lumbago," if you please. This is a term that has never had any definite significance attached to it, but nevertheless it has risen to the dignity of separate consideration in medical journals and in systematic treatises.

The patient, referred by Dr. St. John Roosa, is a young man, of temperate habits, who is happily married and contented with his profession and outlook in life. He has not had syphilis, nor has he been addicted to excesses. He complained of attacks of severe pain in the back, which came on every month or two, sometimes at longer intervals, sometimes at shorter, and which necessitated his remaining under cover for from ten days to two weeks. When the attack first came on the pain in the small of the back was so severe that he could not move. The pain after a short time tended to irradiate down the thighs to the knees. Sometimes it came like a stitch or crick, beginning in the center and radiating out toward the hips, leaving a very sore feeling in its wake. These attacks had weakened him considerably, and he felt the necessity for some sort of a brace or corset to help pull him together. He was of good physique, but of sallow complexion, and somewhat emaciated, and he complained that his strength was very indifferent. His first attack of pain of this character dates back to about five years ago, and apparently followed considerable excitement, overexertion, and exposure. A boat in which he was fishing off the banks having sprung a leak, it was necessary to bale for a number of hours until they were rescued. Some time after this he was treated for an attack of nervous prostration, by a physician of Boston. He has received a great deal of medication in the last few years, and before coming to me he had the luck to escape from a surgeon who had been treating him for a number of months and who finally decided that he would open him up and make captive his kidney, this gentleman having apparently read something of the symptom-complex known as Glenard's disease. Examination showed no departures from normal worthy of remark, save resistant arteries which would not compress completely under the finger, an accentuated aortic sound, and the pallor already spoken of. The hair is scant, and that which remains is of quite a different character to the natural hair. The patient said it was not hair but fur, and to the touch it was much like cat's fur. There was a well defined zone of marginal eczema around the hair line, and the finger- and toe-nails showed decided trophic changes. An examination of the urine showed it to be diminished in quantity, the average being from thirty-five to forty-five ounces, a relative excess of urea, a number of hyaline casts, but no blood, no albumen, no pus, no epithelia. Repeated examination of the urine, day after day, and month after month, never revealed the slightest trace of albumen nor of epithelium. The patient was put upon a diet consisting largely of buttermilk and cream, skim milk, the proteids diminished, the hydrocarbons and carbohydrates tentatively increased, and instructed

to take large quantities of water. Medicinally, he was given in the beginning diuretin in ten-grain doses until the quantity of urine was increased, and then put upon iodide of potash and Basham's mixture. Careful attention was given to the excretory organs, the sympathetic nervous system was stimulated by rain baths, and the result is that the patient has gained twelve pounds in weight and has not had an attack of so-called lumbago since he first came under observation, now more than seven months. The general health has increased proportionately. Occasionally a hyaline cast has been found in the urine, but aside from that it is quite normal. The blood-vessels give a materially different impulse to the finger and show a different sphygmographic tracing than they did in the beginning, and the aortic sound is by no means so accentuated.

I anticipate that some of you may say that this is a case of Bright's disease, and I shall be inclined to agree with such a one if he will point out wherein it agrees with the varieties of disease of the kidney that we are taught to recognize under that name. Until then I shall look upon it as a beginning wide-spread vascular degeneration conditioned immediately by disordered nutrition dependent upon perverted function of the sympathetic system, occurring in a comparatively young man, and that his recovery is an evidence of the recuperability of such blood-vessels when the lesion is not advanced.

The second case that I shall recite is a much more conventional type of arterial degeneration. The patient, a man forty-eight years old, was seen with Dr. J. C. Lynch, of Bridgeport. His complaint was of "dizziness in the head." For the past year he has had occasional attacks of vertigo, during which he would feel as if he were going to fall forward, and he thinks that for a moment he would be unconscious. For the past two or three years it had been noted by himself and by others that there was a change coming over his disposition, his memory, his ambition, and his courage. Although by no means a sluggard or non-observant, he had lost interest in things and in people very decidedly during this time, and physical strength had become impaired. About seven weeks before I saw him he began to have attacks of giddiness very frequently, so that he was obliged to go to bed. The vertiginous sensations were of falling and of rocking sidewise. They would last for about ten minutes, and as soon as they disappeared he felt very hungry. It was particularly remarked that the attacks of vertigo were likely to come on when the head was much extended on the pillow. In addition to vertigo, he has had a good deal of frontal headache, flushing of the face, nausea, cold extremities, sluggish action of the intestines, and a tendency of the abdomen to balloon without apparent indigestion. During the past year he has had a number of crying spells, but was more often in a state of indifference than of depression. Examination showed a sluggish condition of the pupils, a fine tremor of the tongue and of the extremities, and over-excitable knee-jerks. The temporal arteries were conspicuous and sinuous, they rolled beneath the finger, and the walls of the radial artery were discernibly sclerotic to the touch. The second sound of the heart was loud and booming, the first sound short and jerky. Aside from this the visceral organs were normal. Examination of the urine showed no abnormality, save an excessive secretion averaging from sixty to seventy ounces, and a comparatively low specific gravity, varying from 1.009 to 1.013. A few days before I saw him his physician had placed him on an operating table to search for hemorrhoids, of which he complained. The examination caused him pain, and he hung the head over the side of the table. In a few minutes he was taken with a universal convulsion very similar to an ordinary epileptic attack, which lasted about a minute. Since that time there has been no repetition of this, nor was it apparently attended by any evil consequence. His physician reports that treatment consisting of absence from business, a uniform milk diet, regulation and limitation of physical exercise, the administration of a mixture of nitroglycerin and iodide of soda, and an absorbable preparation of iron, has caused the attacks of vertigo to cease and a bettering of the patient's general condition.

The interpretation which I put upon the epileptiform attack is that this patient, with advanced arterial sclerosis, put his body into such a position that an undue amount of blood was sent to the cerebral blood-vessels, which caused their dilatation. The process of disease in the vessels having destroyed their elasticity, the return to their normal caliber was impossible, and the result was a passive congestion, which was manifest externally by symptoms of motor irritation, and these subsided only when the patient was brought into a sitting posture, the return to normal cali-

ber of the blood-vessels being assisted by gravity.

A third case which I shall cite as an evidence of arterio-capillary fibrosis is one that may be diagnosed as acroparesthesia, a condition which was formerly described by Putnam, by Dana, and by the writer, as the paresthetic neurosis, but which is now usually designated by the term above mentioned, a sufficiently fitting one, meaning as it does perverted sensation of the extremities. The patient was a woman of fifty, who has worked hard all her life, and who has but recently finished with the menopause. She complained of giddiness, and of vertical headache, but the principal reason for coming to the clinic was that her hands got unwieldly and numb, less dextrous and agile. She could not sew, and was prevented from doing any work save that of the grossest character. Very often the hands and feet were the seat of tingling sensations, feeling of "pins and needles," and this was particularly liable to occur in the early morning, it being so severe at this time that it usually awakened her. In addition she complained of flatulency, of constipation, of impaired strength and ambition, of cold extremities, and of occasional attacks of profuse perspiration, which weakened her. Examination showed a high-tension pulse with weak heart beat, thickened arterial walls, an extremely accentuated aortic sound, tortuous temporals, and the general vascular conditions that constitute the signature, arterio-capillary fibrosis. She improved under the same plan of treatment that was advised for the previous patient, except in this case cascara sagrada and belladonna were added to the list.

The fourth case that I shall cite is one that had given some difficulty in its interpretation, and I shall be glad to hear if any of you have encountered similar cases in your practise. The patient was a manufacturer, sixty-four years old, who has been abstemious in everything save work. He has labored long and persistently to shear the sheep with the golden fleece, but, notwithstanding, he retained a commendable degree of bodily vigor and mental health. He denied venereal disease of any kind, and he is married, but childless. Until about three months before I saw him with his physician he had been in his customary health, but had been harassed somewhat by business cares. It was remarked that he did not disport himself as formerly; that he was preoccupied and less communicative, and inclined to be depressed and easily irritated. He slept badly and lost flesh progressively, so that at the end of about ten weeks his weight had fallen off thirty-five pounds, and his apparent age had increased about ten years. Accompanying these were perversity of appetite, constipation, and excessive secretion of urine. Although apparently of sound mind, of fair memory and reasoning capacity, he began to have strange fears and obsessions concerning his business and his personal safety. These were in a measure undefinable, but he often stated that he would not be allowed to remain home long; that the city or his creditors would have him sent away, although he would give no explanation of these statements. At such times his demeanor was that of one who had indulged in some transaction that did not redound to his credit and which he desired to keep to himself. These false beliefs were in no way systematized, nor could he give any reason for their possession. He remained at home, fearful of going out, and day by day seemed to get a little further removed from bodily health, the principal symptoms being sleeplessness, restlessness, irritability, groundless fears, and progressive loss of flesh, all without apparent cause. Examination revealed, in addition to the impaired nutrition and its concomitants, loss of knee-jerks, contracted pupils which did not react to light and shadow, and very little in accommodation, and fine tremor of the extremities. There were no sensory disturbances, no dereliction of the sphincters, and none of the associated symptoms of tabes, or of the somatic and physical conditions that go to make up the signature, general paresis. The evidences of arterial degeneration were striking in the blood-vessels, in the peripheral circulation, in the heart, and in the urine. Treatment directed toward the relief of this degeneration has been followed by improvement, but he has not been under treatment sufficiently long to warrant a statement of how complete his reparation will be.

This is a type of case that physicians look in vain to their text-books for recognition and elucidation. The complex of symptoms do not fit in with any of the described diseases. The case is not one of tabes nor of general paresis, although it has a number of the important symptoms and accompaniments of these two diseases; but the general features of the case are so unlike these diseases that no one would make the mistake of allotting it to either. If one chooses he may call it

neurasthenia of a grave type or a variety of melancholia, and dependent upon organic changes in the vessels, but such baptismal indulgence does not help us any in interpreting the nature and genesis of the disease nor in directing the treatment. The important point, I venture to state, is the recognition of the fact that we are dealing with a disease of the vegetative system of the body which is manifested principally in the blood-vessels, and that the treatment of the mental and nervous symptoms must be through this system, and these tissues.

The next, and last, case to which I shall refer is one that has interested me very much, first because of the effect of treatment, and second, because it has seemed to me an important contribution to aphasia. The findings of the case have been summarized in my recent book, "The Genesis and Dissolution of the Faculty of Speech" (The Macmillan Company, New York, 1898).

Mrs. X., a widow, sixty-three years old, the mother of eight children, has had a vigorous, active life, free from ill health, save that twelve years ago she suffered severely from attacks of renal calculi. During the past year or two she has complained of indigestion and more recently of a dull, aching sensation in the back of the head and neck, with occasional attacks of very severe pain in the left temple. For a few weeks previous to the beginning of her present symptoms she suffered from insomnia, from irritability, nervousness, and forgetfulness. Her son, a physician, gives the following account of the onset of her aphasic symptoms: One week before consulting me she discovered, while making a call, that her speech had become, without warning, very much embarrassed. She could not finish the sentence that she had started to speak. She forgot what she wanted to say. She chafed under this impotence and got very much excited. She returned home in a street car, and was much astonished to discover that on looking at the signs with which the cars are lined that she was quite unable to comprehend their signification. She could see the letters and words, she knew that they were letters and words, but they conveyed no meaning to her. When she got home she tried to tell her family about her disability, but was able to say only a few words, and these were entirely disconnected. After trying to speak for a time she became excited and began to cry. On the following day, when she awakened, she could say only "Yes" or "No," but as the day wore on her vocabulary became somewhat larger. It was particularly remarked that when she was excited or very emotional sometimes words would flow out of her mouth in an astonishing manner. From that time until I saw her there had not been very much change in her capacity for speech production.

The following is a stenographic report of the examination to determine disorder of voluntary speech. In response to the request to tell me all that she could concerning the onset and course of her symptoms, she said:

"Well, mem-mem—three weeks, m-m-em—feel-m-em-em—sometimes [prolonged pause, seems to be thinking] couldn't thought—no thought—forget—but—eh—last Friday [another prolonged pause] am—no—noticed they—I couldn't—eh—I—[prolonged pause] I couldn't tell, am, I don't, I can't, can't express [explosively] I can't tell—I cannot [points to her head and looks weary]. It seems, I can't, last Monday, con-con-nects—sentence, two or three words—gone. Was—gone, blank, didn't know. Can't think, was gone, forget—forget everything. Couldn't, couldn't, can't."

To test her capacity to repeat, I asked her to say after me, "I stood on the bridge at midnight." Her reply was:

"I stood—the—night," said with great effort, and with apparent endeavor to repeat each word as quickly as they fell from my lips.

"Still sits the schoolhouse by the road?"

"Forget—yes—the—the s' s' s' forget—road."

"Waterloo was a battle of the first class, won by a captain of the second."

"The bat-tle, ah, me, ah me, ah."

It is particularly noticeable that when I speak she endeavors to say the words after me very rapidly one word after another, but it is quite impossible for her to repeat more than a word or two. The patient is an English lady who formerly was able to speak German very fluently, but when I recite the first verse of Schiller's "Bell," beginning, "Fest gemauert in der Erde," etc., she is not able to repeat a word of it. I then ask her to repeat the Lord's Prayer. She assures me by nod of the head that she cannot do so, but when encouraged to try she says: "Fa' a' ther—our fa—" [gets excited and I believe tries to convey to me that she was unable to repeat it last evening]. I then asked her to say it to herself. She again indicates that it is entirely impossible. I ask her if it is impossible, and she says "Yes."

It is interesting to note that when I encourage her to say it to herself after I have told her that I am going to say it in my internal language to determine if we reach the end simultaneously, she adopts the conventional attitude and manner, probably thinking that they will prompt the recalcitrant words, but all to no purpose. She is quite unable to read, either in a loud voice or to herself, although she can say a word of what she reads here and there, but words and sentences convey no meaning to her. She takes up the newspaper, cons it carefully, then puts it down with an expression of dissatisfaction and disgust. In other words, there are manifest verbal blindness and profound alteration of mental images. There is no trace of hemianopsia.

When I request the patient to write her name, she does so promptly. When I ask her to write the name of her son, she does so; likewise the street and number where she resides. She is absolutely unable to write spontaneously. Her capacity to write from dictation is tested by asking her to write, "When in the course of human events," but she is absolutely unable to do so. The only word that is produced after numerous attempts and repetitions of the sentence is the word "When."

Writing from copy is done without trace of hesitation or error; and when she is asked to copy printed letters in writing she does so with great readiness. She comprehends spoken speech, but oftentimes it is necessary to repeat before the meaning of what is said fully dawns upon her. In other words, although there is no word deafness, there seems to be some difficulty in calling up auditory images quickly and readily.

She has no trace of hemiplegia, unless we call a slight asymmetry of the angles of the mouth an indication of defective cortical innervation, as the right angle of the mouth seems to be a trifle lower than the left. There is no ataxia or incoordination of the extremities; the knee-jerks are lively and of equal intensity on both sides; the pupils react to light and shadow; there is no tone deafness or object blindness. The urine contains albumen and casts; the pulse is regular; the arteries are hard and incompressible, and the second sound of the heart is very much accentuated. In other words, she has extensive arterio-capillary fibrosis.

The interpretation which I put upon the case is as follows: Pathological diagnosis—general arterio-capillary fibrosis, with consequent slight encephalomalacia of Broca's convolution. Clinical diagnosis—true cortical motor aphasia, articulatory kinesthetic aphasia. I need not remark that the elicitable symptoms parallelize in every detail those typical of this form of aphasia. The chief deficiency of internal language seems to be an inability to evoke the articulatory kinesthetic images of the words, and this constitutes a gap in the circuit of internal-speech impulses. No more illustrative case could be cited to show that spontaneous writing and writing from dictation are disordered commensurately with voluntary speech in true cortical aphasia. Moreover, the case shows with uncommon clearness that a striking degree of verbal blindness occurs with cortical motor aphasia.

The patient has improved very materially under the same plan of treatment that was given in the previous cases.

And now, to turn more directly to the treatment of this obscure but widely prevalent disorder. I have little that is new to offer, but it may be of some advantage to make a statement of personal experience, that one may determine if it tallies with that of others. No one can have had much to do with cases of this sort without reaching the conclusion that their successful treatment must needs be almost as individualized as we have seen their causation to be. Although there are certain underlying principles which guide us in the application of medicinal, hygienic and dietetic measures, which are so sanctified by long experience that no one thinks of doubting their applicability, nevertheless they cannot be applied without discrimination and judgment. All cases are bettered if the excretory avenues of the body are kept scrupulously free and functionally active. The diet should be of the simplest, most easily digestible, and most nutritious. This is a necessity that is scarcely ever carried out, even though it be enjoined, for the patient with arterial sclerosis cannot be persuaded in the beginning of the gravity of his disease. It is not improbable that arterio-capillary fibrosis would not be so uniformly progressive were it not for the hesitancy of physicians in diagnosticating it before it has produced symptoms that threaten the duration of life, and the fact that patients will not assume the necessary attitude toward regimen, hygienic and medicinal measures and persist in them. If the cases are seen sufficiently early, the treatment should be directed toward the maintenance of the functions of the sympathetic nervous system, par-

ticularly its metabolic and vascular functions. In doing this it may be necessary to retrench the work put upon it; to aid it in doing its work; and to guard against the evil effect that may follow its partial disability. The retrenchment consists of the dietary and hygienic measures already mentioned; the guarding against consequences of disordered sympathetic perversion is sufficiently explicated by what has been said regarding the emunctories; the third indication, namely, that of assisting the sympathetic in carrying through its metabolic and vascular functions, is best met by life in the open air, if possible, by intelligent exercise, and by hydric procedures.

I am well aware that these statements are truisms. I repeat them only because it seems to me that they are not sufficiently often insisted upon in practise; in other words, that an endeavor is made to supplant them by medicines—a fatuous hope.

Of all the hydric procedures that I have found most serviceable, the rain-bath is by far the most important; if the disease process is not far advanced I regard it of great service. Naturally it should not be used in senile cases. It depends upon the vitality and reaction of the patient whether or not he should be first heated somewhat by being wrapped in a hot sheet and blanket, or put in a hot box for a few minutes, with the head exposed, before being put in the circular bath. If his vitality is not very abundant, and his reaction responsive, this heating before the application of the rain-bath will be found to be very salutary.

The question of exercise is one that cannot be decided for even a given case until that case is studied individually and with care. I am inclined to believe that the promotion of metabolism, brought about by mechanical percussion, massage, and the other mechanics of Zander institutes, is of far greater utility than walking, riding, golfing, and the like; and in any case the latter should be indulged in with great moderation. The value of fresh air, of course, is not overlooked, but it has been my experience that patients with arterio-capillary fibrosis do better when they take fresh air without very much exercise with it. For many patients such a plan of treatment as this spoken of will be entirely unfeasible. But here we have to make the same concessions to breadwinners as we do in other diseases that need different environment and change of climate.

The medication of arterio-capillary fibrosis which physicians rely upon more than anything else, probably, is the administration of iodide of potassium, the nitrites, and iron. No one doubts the very great importance of all these measures, but the mistake should not be made of relying too exclusively upon them. Naturally, the iron favors oxygenation and oxidation. The iodide salts have some action upon the sympathetic nervous system which we in no way understand; and both of these results are sought for in the treatment of this disorder. The question that every one has to decide in administering the iodides and the nitrites is, what salts or preparations are most serviceable and how long shall they be kept up? For instance, after giving nitroglycerin for a month or two months, or even longer, the question arises should it be persisted in, the indications for its use being still present in the increased tension of the pulse? It is my conviction that better results are obtained if the nitroglycerin is interrupted for one week out of every four or thereabouts, and dependence placed in the meantime upon opium to maintain the compressibility and elasticity of the artery. I know that opium increases the systole and raises blood-pressure, and that therefore it is contraindicated in arterio-capillary fibrosis. Nevertheless, it is my experience that in very advanced cases of this condition quite as much, or more, reliance can be placed upon morphine to contribute to the patients' comfort and to the length of their days than on any other single measure.

There are one or two points concerning the administration of the nitrites and the iodides to which I would like to refer. The first is that nitrite of sodium is incomparably more serviceable than nitroglycerin. The most important factor in its favor is the duration of its action. Its physiological effect lasts about four hours, while that of nitroglycerin is from fifteen to twenty minutes. The second point to which I wish to call your attention is that nitroglycerin gives me greatest satisfaction when it is administered in fractional doses—*i.e.*, from $\frac{1}{120}$ to $\frac{1}{80}$ of a grain every half hour, or even every fifteen minutes. This dosage is kept up until the desired effects are produced, the quantity being afterward increased or diminished as the needs of the case may make it apparent.

Of the iodide salts, the iodide of soda is by far the most deserving of use in arterio-capillary fibrosis. It has nothing like the tendency to derange the digestive tract that the iodide of potassium has. I prefer to ad-

minister it in milk if the patient can take the latter; if not, any alkaline medium furnishes the most acceptable substitute.

Thus I have been able to offer nothing in the way of therapy that is at all new to you, but in closing I would like to say that to my mind the most important element in the treatment of arterio-capillary fibrosis is the study of the individual case, that one may detect wherein exists the defect of the vegetative system which is gradually undermining the blood-vessels. When its apparent source has been discovered, be it gout or rheumatism or what not, we should not be content in attacking that. The factors antecedent to the apparent cause must needs be eliminated, then the state which we have been speaking of cannot come into being.

CALCULOUS DISEASE, AND THE TREATMENT BEST ADAPTED FOR ITS PREVENTION.

By H. Foster Hazlett, M.D.,
Pueblo, Colorado.

The results of modern operative procedure for the removal of calculous matter are certainly admirable. These excellent achievements of our craft are themselves a great monument to the triumph of modern surgery, and yet how infinitely preferable would it be to be furnished with the means of restraining the formation of calculi, on the first appearance of evidence that such a contingency is imminent or likely to occur.

I believe there exists a period in the history of the process which leads to the formation of renal or vesical calculus at which it might be possible to prevent the development of a considerable deposit, and hence the necessity for mechanical interference in its removal. For our purpose, it suffices to regard all calculi as generally divided into two classes—those which have a local, and those which have a constitutional, origin. By the term "local" is meant those concretions whose formation depends upon diseased action in the bladder only, and not depending upon constitutional diathesis; and by "constitutional" I mean formed in consequence of a malassimilation which has become more or less inherent in the system. The large majority of renal and vesical calculi are of constitutional origin, and it is to this class we wish to refer in particular. Preventive medicine has little to do with calculous matter of local origin except in a mechanical way, as for instance the breaking, dissolving and washing away of vesical calculous matter. Mechanical means are of no avail when stones are of constitutional origin, because their component elements are separated from the blood and it is only at this early stage that anything can be of avail.

Now, from available statistics and observation, we know that nineteen out of twenty of such stones have uric acid for their basis, the remaining one in twenty being oxalate of lime; and, less commonly still, there are phosphatic stones which are of constitutional origin also. Reasoning on this premise, the proposition practically resolves itself into the prevention of uric acid deposits.

In our examination of the early history of a case of persisting uric acid formation, we not infrequently see a marked manifestation of hereditary influence. How frequently do we find in tracing up the family history of a uric acid patient that his father had "gravel or stone for the last twenty years of his life." It is not an unusual experience to find a history of gout in connection with the patient with a uric acid stone. Few indeed are the calculous patients with neither gravel nor gout as factors entering into the history of their preceding generations. This hereditary tendency varies in force or strength in different families, but scarcely more than is found in tubercular or cancer diseases. Some persons at thirty years of age show persisting uric acid deposits, others at forty, others not until sixty. Of course, the earlier the age at which it appears, the stronger you may infer the hereditary disposition to be, and the more obstinate, probably, will be its tendency to persist. The first symptom of this condition, usually, is the frequent occurrence of a pink sediment at the bottom of a vessel in which urine has stood. This deposit with its staining propensity is the first thing which excites attention on the part of the patient. This character of urine, passed originally perfectly clear and healthy in tint, soon, upon cooling, becomes turbid and opaque. The lower the external temperature and the smaller the amount of urine passed, the more marked these phenomena seem to be, hence the more frequently to be found during the colder months of winter, when smaller amounts of water and fruits are consumed. The change consists in a deposit of salts from a hot solution as the liquid cools; the deposit being easily redissolved by heating the urine, when it regains also its original transparency. It is the persistence, or at

all events frequency, of occurrence of the above symptoms which taken collectively mean an unduly large production of the mixed urates (urates of soda, potash, lime, etc.), and in time the arrival also of little crystals of uric acid, looking like particles of Cayenne pepper or red brick-dust, at the bottom of the vessel, which denote an undue tendency to produce uric acid, either inherited or acquired. We grant the possibility, indeed the probability, of this being an acquired condition, or the preexistence of an intensified habit; indeed, it is often the result solely of improper diet and regimen.

Let me again insist that this may occasionally happen with the most healthy individuals; and it is only the persistence of the symptoms, without any flagrant errors of diet, which should lead one to suspect it to be a constant condition that requires medication.

We have now followed the complaint up to the formation of Cayenne pepper crystals. This deposit consists mainly of transparent rhomboidal uric acid crystals, and is to be regarded as a pathological change. In healthy urine uric acid exists only in combination, and is not found free, except possibly in the smallest amount (three to ten grains per twenty-four hours), at the moment it is voided. Patients who periodically pass large quantities of this material not infrequently experience pain in the back, or over one hip, with darting pains extending to the groin or testicle, and accompanied perhaps by nausea; and he may then be said to have a mild attack of gravel. Occasionally these symptoms are much exaggerated, and it is then said of the patient that he is passing through the stage denoting the passage of a renal calculus. Have not these patients been the subjects of a "uric-acid storm?"—to use the words of Sir Henry Thompson. These phenomena become more frequent or severe, unless the patient does something to prevent their occurrence. Subsequently he may pass very small calculi. Later on these rounded bodies tend to become as large as peas. In the cases where excruciating pain accompanies their transit from kidney to bladder, some signs of it are generally manifest in the urine by the presence of blood—"coffee grounds"—and a smaller quantity than normal.

That there exists a relation between gout and uric acid deposit is aptly depicted in the alternating of these two complaints, comparing one generation with another; gout, in its ordinary form of attack in the great toe, appearing in the one, gravel in the second, and gout again in the third. This characteristic may exist in the same individual, however, for I have seen a patient who had suffered for years from gout become suddenly free from his attacks without known cause for several months, when he developed for the first time a uric acid stone in the bladder. The identity of gout and uric acid gravel I believe to be probably unquestionable; they constitute two different series of phenomena, but both arise from an overproduction of uric acid compounds coupled with an inability of the system to properly eliminate the same.

It is not my purpose to discuss here the numerous theories advanced concerning the formation and excretion of uric acid, save to say that it is generally agreed that it is formed within the tissues and is gotten rid of by the kidneys; also that experimental research seems to support Minkowski's view that it is also formed within the liver.

Now, what is the best procedure to institute with those patients who persistently pass Cayenne pepper crystals of uric acid or minute calculi? The question of avoiding or anticipating the arrival of at least the advanced condition—namely, that of calculi too large to be voided by the patient—seems to be the abstruse answer. Generally speaking, I think such patients come under observation in a tolerably early stage, although it is obvious that this is not always the case. Some are unnecessarily alarmed when the urine is only occasionally thick with urates. We must ever keep in mind the fact that sand, gravel or calculus can only be formed when the solution is maintained by undesirable circumstances in a too concentrated state. Under these circumstances the excessive acidity is of itself a natural sign of the presence of a large amount of uric acid. Although the bladder is commonly quite tolerant of a full acid condition of its contents, nevertheless the presence of a full proportion of acid has come to be regarded as sufficing to establish an almost universally adopted principle of treating the complaint (with continuous use of alkalies). If treated at home the patient is usually given bicarbonate or citrate of soda, potash or lithia; or perhaps benzoate of ammonia; or Vichy, Evian or Vals mineral waters (carbonate of soda); or some other alkaline drink is consumed in large quantities. Or, perhaps the patient is sent to drink the waters on the spot. "Carbonate of soda is the chief alkali

in the majority of natural alkaline waters" (Sir Henry Thompson), and the consequence is that if enough be imbibed the urine will clear up and become less irritating; and uric acid will no longer be deposited. But is not much more to be desired than merely to hide from view the enemy—uric acid being quite soluble in an alkaline fluid? The enemy is there, for you have not checked the acid formation. The uric acid is there, and probably in as large quantity as ever; for you have only rendered it and the urates invisible in the alkaline media. The surplus deposits have become unrecognizable by vision—nothing more. Alkalies in moderate amount cannot be said to be of absolutely no use as regards the constitutional state; but that they will not improve it to any great extent, and that when withdrawn the acid will show itself again, is the history of such cases. As to curative value, the diuretics are of no more avail. They increase the secretion of water and the solids are thus dissolved, while the perhaps already overworked kidneys are stimulated—goaded—to do still more.

Before delineating a line of treatment different from that which I have just chosen to criticize, I realize the advisability of my premising that the origin of those familiar symptoms which all agree to recognize as gout, as well as of a superabundant uric acid deposit in the urine, is due to defective assimilation on the part of organs associated with or forming the *primæ viæ*. At the foundation of this tendency to uric acid production exists what we may understand as inactivity of the liver and skin. Insufficient work on the part of these necessarily entails unusual activity of the kidneys. Thus some of the ordinary constituents of which the solid matters of the urine are composed are augmented—not all of them, for urea is not necessarily increased; but uric acid is largely produced, and is eliminated not only in solution but in the form of crystals. When the amount of uric acid increases much above the normal and the ordinary amount of urine is present, it will not suffice to dissolve the whole, and solid uric acid is deposited in some part of the urinary channel. If this be a correct conclusion the formation of uric acid gravel is not by any means to be regarded as necessarily a kidney disease, but rather the result of an active organ vicariously relieving some other organ the function of which is torpid. The true remedy, therefore, is not to stimulate the kidneys, already overworked, by diuretics, etc., but to look to the results attained from increasing the activity of the liver.

The most rational treatment, therefore, I believe to exist in the exhibition of such agents as will stimulate the excretory action by the *primæ viæ* without depressing vital power. No doubt that a powerful agent for the purpose is mercury; and it is quite undisputed that relief of the symptoms above alluded to is to be obtained in a remarkable manner by the occasional use of blue pill combined with compound extract of colocynth. It is not always necessary to use mercury, however. Nature has wisely provided us with certain kinds of mineral waters, whose constituents far surpass for prolonged use either mercury or the "substitutes for mercury" (taraxacum, nitric acid, podophyllin, and the alkalies), in what is called "promoting the action of the liver." I refer to meritorious natural mineral waters—medicaments prepared deep down in the bowels of the earth by an omnipotent and inimitable pharmacist, with medicinal powers for which the physician can find no substitute, or the druggist duplicate. The mineral waters which give us best satisfaction in hepatic torpor are those marked by the common and distinctive characteristic of containing in solution sulphate of soda in considerable quantity, varying proportions of sulphate of magnesia and less important salts. The saline combinations found in natural springs have certain marked advantages over the pharmaceutically crystallized salts or those reduced by ordinary commercial processes. The advantage exists principally in the superior potency of the product from Nature's laboratory. The usual dose of sulphate of magnesia may be said to be half an ounce, but the same effect will be obtained with one-third or one-fourth of that quantity if taken in the form of mineral water. I refer to natural mineral water, for "artificial waters," however admirably prepared, are simply pharmaceutical products, and are destitute of a remarkable quality which distinguishes the remedies they are designed to imitate.

These waters are classified as the "saline purgative" and "saline aperient" groups, and should contain not less than two drachms of sodium sulphate and not less than one and a half drachms of magnesium sulphate to the pint. The best known aperient saline waters contain 150 to 154 grains of the former and 116 to 148 grains of the latter to the pint, with practically no carbonate of soda and little iron or other ingredients. Six to eight

ounces of the best of this class of waters is for the adult an average dose, and should be warmed and diluted by adding, say, a third or a half of its bulk of hot plain water. Certain of these waters are so concentrated as only to require one-third to two-thirds of the quantity above named, which has reference to the average of this class of waters; and I certainly think them preferable when accessible. If, then, a dose of either be taken in the early morning, an hour before breakfast, which should be a light meal, a full free action of the bowels will probably follow soon after. There is something which I do not pretend to explain, and certainly shall not speculate about here, which distinguishes the action of mineral waters from the action of salts which are found on our druggists' shelves. This difference is aptly depicted in the clinical manifestations; for if you evaporate a quantity of, say, Hunyadi water in a warm water-bath so as to avoid decomposition of the salt, and retain the water of crystallization, thus obtaining as perfect a product as a chemist can produce, and administer three times as much of this salt as that which exists in a dose of the natural water, you will probably not produce such efficient or certain results as the small quantity contained in the natural water insures.

Now, the principle upon which the waters of the sulphate of soda group, aperient or non-aperient, are beneficial, is that they produce activity in all the digestive functions, stimulating the excretory action of the abdominal organs, so that certain waste matters which have been hitherto thrown out as uric acid by the kidney are eliminated in some other form. It may also be said of these waters that their use can be kept up indefinitely without an increase of dose, which is certainly an important and valuable characteristic in any therapeutic agent. This system of treating a constitutional tendency to excrete uric acid in abnormal quantity, whether in the form of gravel or by the less obvious course of gouty attacks in all their varied manifestations, seems to me to have earned a right to be considered prophylactic and eminently successful, and can be more favorably pursued at home, provided certain accompanying advantages can be secured, than by sending the patient abroad. It is desirable to secure, during a course of waters at home, at least regularity of meals, scrupulous attention to diet and habits of life, and if possible to insist upon a long continued use of the water. Moderation in diet is probably of more importance than exclusion of any particular kind of food. Milk diet, if it could be maintained a long time, would probably be the best of any exclusive diet, and should form an important part of any mixed diet. The two classes of food which it will be best to eliminate from the dietary are fatty matters and saccharine products of all kinds—the former not entirely, the latter as completely as possible. Alcoholic drinks of all kinds are, I believe, invariably pernicious in all such disorders presenting the symptoms before described as depending upon a "torpid liver," and therefore should be forbidden.

Summary.—The points which I wish to emphasize are as follows:

1. Calculi are of local or constitutional origin; and those depending upon a constitutional diathesis are greatly in the majority and are the ones to which I refer in particular.

2. Since uric acid forms the basis of the vast majority of calculi of constitutional origin, the question of preventing the formation of gravel resolves itself largely into one of regulating the production of uric acid and favoring its elimination from the system.

3. The true *rationale* of the unduly large formation of the urinary salts appears to be due to an inefficiency in the excreting power of the skin and liver; and the kidneys have more work than is natural thrown upon them. Uric acid is largely produced and is eliminated not only in solution but in crystalline form.

4. Alkalies and diuretics will not improve the constitutional state involved in stone formation to any great extent, and there is reason to believe that large quantities habitually taken exercise an undesirable influence, especially upon the kidneys.

5. The long-continued daily use of certain saline aperient natural mineral waters of the sulphate of soda group is beneficial in calculous disorders because they produce activity in all the digestive functions and stimulate the excretory action of the abdominal organs to the end that certain waste matters which were previously thrown out as uric acid by the kidney are eliminated in some other form.

6. Sulphate of soda is one of the most excellent therapeutic agents we possess, and deserves to be more popular than it is; but it is not as potent in the form of the commercial salt as in the form of natural mineral

water, nor can it be given continuously without increase of dose except in the form of the waters above mentioned.

419½ Santa Fe Ave.

*THE CONSERVATIVE TREATMENT OF FIBROID TUMORS BY MYOMECTOMY.**

By Charles P. Noble, M.D.,
Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia.

The operative treatment of fibroid tumors has developed through several stages. In the beginning the removal of the tumor only was attempted. This method of operation was employed because it was considered the simplest and safest, and not from motives of conservatism. At a later date the uterus was removed together with the tumor or tumors, because it was believed to be a safer method of operation than the removal of the tumors alone. Still later the removal of the ovaries was employed to bring about the artificial menopause, and thus promote the involution of the tumor. This method was employed also upon the ground of the relative safety of the procedure.

In the development of the technique of these methods of operation the advantages of hysterectomy over the removal of the ovaries have become manifest, and this is the usual method of election. In a certain class of cases it has been demonstrated that the removal of the tumor itself (myomectomy) is a safer operation than the removal of the uterus with the tumor or tumors (hysterectomy). In the recent past true conservatism—that is, the welfare of the patient—has required the selection of one or other of these methods of operation, depending upon the nature of the case. The technical details of operation for fibroids have been so perfected, and the safety of these operations has been so greatly increased, within the past few years that it has become possible to advance conservatism a step forward, and to view the removal of fibroid tumors from a higher standpoint. Undoubtedly the ideal method of treatment of fibroid tumors is to remove the tumors while retaining the organs of generation and the functions of menstruation and procreation. This must be accomplished by broadening the field of myomectomy and restricting that of hysterectomy. The object of this paper is to discuss the present status of myomectomy, and to advocate such changes in practise as will render this conservative operation applicable in many cases in which it is now necessary to resort to hysterectomy.

The first myomectomy was performed by Amussat (Memoir upon the Pathological Anatomy of Fibrous Tumors of the Uterus, etc., Paris, 1842) June 11, 1840. The tumor was a submucous fibroid in the early stages of the process of being extruded from the uterus by the contractions of that organ. Amussat performed his second operation in 1841 (*loc. cit.*, p. 41). Both tumors were removed *per vaginam*. They were not only the first myomectomies, but aside from the removal of fibroid tumors which had become polypoid and extruded into the vagina, they were the first fibroid tumors to be removed. In these operations there was no question of conservatism in the modern sense of the term. Myomectomy was performed instead of hysterectomy simply on the ground of the relative safety of the two operations; hysterectomy was yet unborn.

Washington L. Atlee was the next surgeon to perform myomectomy, and the first to systematically and continuously advocate the removal of these tumors upon scientific grounds. Atlee's first myomectomy appears to have been done for a pedunculated fibroid tumor, which was removed by celiotomy August 28, 1844, with a diagnosis of ovarian tumor. This diagnosis was corrected at the autopsy several years subsequently, when both ovaries were found *in situ* (Atlee, Ovarian Tumors, p. 249).

Atlee's first myomectomy performed *per vaginam* is recorded in his prize essay (The Surgical Treatment of Certain Fibrous Tumors, etc., *Trans. Amer. Med. Assoc.*, 1853, p. 559). The operation was begun May 8, 1845. The tumor was removed piecemeal at different times. The patient died July 16 of pneumonia. Atlee continued to operate *per vaginam* and by abdominal section, and in 1853 reported fourteen cases (*loc. cit.*). A study of Atlee's very full report of these cases is most interesting, and serves to increase one's respect for this great man, who was even more a pioneer in the surgical treatment of fibroid tumors than in ovariotomy.

It is beyond the scope of this paper to refer to numerous surgeons who advanced the operative treatment of fibroid tumors in its early stage. It must suffice to refer to a

*Read before the Pennsylvania State Medical Society, May, 1898.

few of those who have aided in the perfection of myomectomy. Emmet working over many years perfected a method of removing intra-uterine fibroid tumors by making traction upon the tumor, and removing the tumor by cutting it up with scissors. This method was probably the basis from which developed the modern method of morcellement as applied to operations for fibroids. There is the essential difference, however, that while Emmet used the method in the performance of myomectomy, the French school have used it in the performance of hysterectomy.

A. Martin, of Berlin, in 1886 (Diseases of Women, American edition, 1890, p. 280), performed myomectomy for an intra-uterine tumor by the abdominal route. He states: "The great tumor was extruded from above after laparotomy and incision of the uterus. Its bed was cleansed and the uterus sutured. The union and involution of the uterus proceeded in a thoroughly satisfactory manner." This is probably the first case in which a myomectomy was done by the abdominal route for an intra-uterine tumor. Numerous pediculated tumors had been removed by abdominal section, and as early as 1853 Atlee had removed a sessile subperitoneal fibroid tumor by myomectomy (*loc. cit.*, p. 548). Martin has been a constant advocate of myomectomy for intramural fibroids upon the ground of conservatism. His advocacy of myomectomy had less weight than it otherwise would have had, because the results which he obtained were less favorable than those obtained at the same time by the adherents of hysterectomy.

No other surgeon can be specially singled out as having advanced the operation of myomectomy, but with the perfection of abdominal surgery it became possible to substitute myomectomy for hysterectomy in many cases without increasing the primary mortality of the operation, and with the great gain of conserving the organs of generation. Numerous operators, especially in this country and in Germany, embraced the opportunity to extend the field of conservative surgery. At the present time much thought is being given to the best method for broadening the indication for myomectomy. Early operation for fibroid tumors heretofore has been advocated in order to lessen the mortality of hysterectomy, the basis of its advocacy being that hysterectomy has a lower mortality than fibroid tumors when these are not removed by operation. In estimating the comparative mortality of hysterectomy and fibroid tumors without operation, the fact must not be lost sight of that fibroid tumors are very frequently complicated by other morbid conditions, such as ovarian tumors, pyosalpinx, inflammatory disease of the uterine appendages, necrotic degeneration of the tumors, cystic degeneration, sarcoma, calcareous degeneration, and in a small percentage of cases carcinoma of the body of the uterus or of the cervix is present. The mortality of the complications alone in a given class of cases is greater than the mortality of hysterectomy, leaving aside the inherent mortality due to the tumors themselves.*

An even stronger ground for the advocacy of early operation is the fact that myomectomy can be much more frequently substituted for hysterectomy. In my own work almost exactly twenty per cent. of the operative cases have been dealt with by myomectomy.

Certain considerations control the indication for myomectomy. The primary purpose of myomectomy is the conservation of the functions of menstruation and procreation, therefore it follows that the age of the patient and the desirability of child-bearing are the main factors in determining the indication for this operation. In women who are approaching the menopause nothing is gained by substituting myomectomy for hysterectomy. Aside from these relative indications the nature of the growth is the absolute indication for or against myomectomy. Typical cases for myomectomy are those in which but a single tumor is present, and favorable cases are those in which the number of tumors is small. When the number of tumors is great, the desirability of the operation becomes less because of the greater technical difficulties of the operation and the

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*In a study of my own experience in fibroid tumors (The Development and the Present Status of Hysterectomy for Fibromyomata, *Trans. Amer. Gynæc. Soc.*, 1897), among sixty-six cases of fibroid tumor for which hysterectomy was done, the following complications were met with: Cystic degeneration, 3; calcareous degeneration, 3; sarcomatous degeneration, 3; necrosis of the tumor, 2; bilateral hydrosalpinx, 4; unilateral hydrosalpinx, 4; bilateral pyosalpinx, 4; unilateral pyosalpinx, 2; unilateral ovarian cyst, 4; bilateral dermoid ovarian cyst, 1; parovarian cyst, 1; ovarian cyst, ruptured tubal pregnancy, appendicitis, 1; intraligamentous development of the tumor, 6. I reported also three cases of cancer of the cervix complicating fibroid tumors, in which hysterectomy was not performed. Also, of seventeen fibroid tumors which had been removed *per vaginam*, five were necrotic. In my experience about seven per cent. of the fibroid tumors upon which I have operated have been necrotic.

increased risk attending it. When the uterus is studded with fibroid tumors, the operation is contraindicated, because of the impossibility of removing all of the growths and the probability that some of those remaining will continue to grow and require subsequent operation.

Myomectomy may be performed either by means of the abdominal or vaginal route. The cases best suited for the abdominal route are subserous and intramural fibroid tumors. When of large size submucous fibroid tumors also are best attacked from above. The essentials for success in myomectomy are perfect asepsis and hemostasis, in addition to a good surgical technique. Operators whose facilities do not afford these requirements should not undertake the operation. The technique of the operation is comparatively simple. The capsule of the tumor is incised and the tumor peeled out from its bed. When the capsule is large, this must be trimmed so as to facilitate the closure of the wound. The wound is then closed by continuous catgut suture, as many tiers of sutures being used as necessary to obliterate the bed of the tumor and to secure perfect hemostasis. The peritoneal covering of the uterus is closed in the usual manner. When the tendency to oozing is marked, the use of mattress sutures is of great service. The ligation of one or more of the four arterial trunks supplying the uterus is admissible when otherwise hemostasis is impracticable. The use of catgut prepared by the cumol method has given me much satisfaction.

The vaginal route is best adapted to the removal of submucous fibroids, cervical fibroids, and small subserous fibroids situated upon the anterior wall of the uterus. This latter class of fibroids is best attacked by anterior colpotomy. Through the vaginal wound the uterus is anteverted into the vagina, the tumor enucleated, and its bed sutured as in abdominal myomectomy. The vesical peritoneum is then sutured to the uterus above the wound in the uterus, and the vaginal incision closed. Cervical fibroids can be reached by splitting the cervix and enucleating them. Depending upon the location and size of the tumor, the method of operation must be varied in different cases. In some of the cases the anterior lip of the cervix may be split antero-posteriorly, in others the posterior lip. In a number of cases I have split the cervix bilaterally, enucleated the tumor, sutured its bed, and then closed the incisions in the cervix. Submucous fibroids may be reached in two ways. The usual method, and the one which I have employed, it to split the cervix bilaterally up to and beyond the internal os. With care it is possible to avoid wounding the uterine artery and vein. This accident has never happened in my cases. Should it ever occur, the vessels would require ligation as in vaginal hysterectomy. After splitting the cervix the cavity of the uterus can be dilated with dilators, and the tumor seized with vulsellum forceps. If polypoid and of moderate size, it should be drawn down and the pedicle divided with scissors. When of larger size and not polypoid, the capsule must be incised and the tumor enucleated with the finger or some blunt instrument. Tumors of large size are best delivered by traction and morcellation, in accordance with the method advocated by Emmet. The capsule of the tumor left after its removal should be trimmed so far as possible with scissors. In my experience hemorrhage after the removal of fibroid tumors *per vaginam* has been trifling; but should it prove troublesome, it should be controlled by packing the uterus with gauze. It is conceivable that it may be sufficiently troublesome to require hysterectomy. After the removal of the tumor, the cavity of the uterus should be lightly tamponed, and the cervical incision united with catgut sutures reenforced with silkworm-gut, so that the gauze may be removed without risk of tearing open the cervix.

Anterior colpotomy followed by splitting of the anterior wall of the cervix and uterus up to and, if necessary, beyond the reflection of the vesical peritoneum has been recommended as affording ready access to submucous fibroid tumors. I have never employed the method, but theoretically it should afford ready access to intra-uterine tumors. My own experience with splitting the cervix bilaterally has been quite satisfactory, but it is quite apparent that the risk of wounding the uterine vessels is greater by this method than by anterior colpotomy. On the other hand, anterior colpotomy presents the objection that there is more likelihood of invading the peritoneal cavity by this method.

My own experience with myomectomy embraces twenty-five cases, in eight of which the operation was done by abdominal section, and in seventeen *per vaginam*. All of the patients made good recoveries. In none of the cases so far as known have fibroid nodules developed since operation. Three of the patients are known to have become pregnant

and given birth to children since their operations. One patient gave birth to twins.

The results of myomectomy in my hands have been most satisfactory. The primary mortality has been *nil*, the recovery from operation in almost all cases has been uncomplicated, and the result of the operation has been satisfactory in every case. A number of the patients were extremely ill when operated upon, due to long-continued hemorrhages and to infection or sloughing of the tumor brought about by the efforts of the uterus to expel the tumor *per vias naturales*. Three of these patients were dangerously ill from anemia and septicemia. It cannot be expected that a *nil* mortality will be obtained in a large series of cases of myomectomy, but the mortality should be lower than that of hysterectomy for fibroids. Cases suitable for myomectomy on the whole are more favorable for operation than the average cases of fibroid tumor. Cases suitable for hysterectomy include all the cases having serious complications. Cases suitable for myomectomy are seldom in desperate condition, the exceptions being those suffering from severe anemia due to long-continued hemorrhages or to infection of intra-uterine fibroid tumors.

In conclusion, I wish once more to express the opinion that the next advance in the treatment of fibroid tumors will be the general adoption of early operation and the more general substitution of myomectomy for hysterectomy as being the most conservative treatment of these growths.

TREATMENT OF GRIPPE.

We have already quoted the treatment given by LYON for certain of the symptoms of influenza. He also gives the following prescriptions for additional complications. For the coryza, particularly if it is marked and the discharge purulent with or without epistaxis, he employs the following:

℞ Vaselin, 2 ounces;
Boric acid, 2 drachms;
Menthol, 7 grains.

A little of this is placed in the nostril by the finger five or six times a day, or the following powder may be used:

℞ Boric acid, 2 drachms;
Menthol, 2 grains;
Hydrochlorate of cocaine, 1 grain.

A small pinch of this is snuffed up the nostril a few times a day. If irrigation of the nasal cavity by means of hot boric acid water is needed, it should be done with care lest infection of the Eustachian tube take place. For the sore throat and laryngitis he recommends hot water compresses to the throat. Inhalations of steam laden with the following drugs, which are placed in the hot water, are useful:

℞ Alcohol (70-per-cent.), 1 ounce;
Menthol, 15 grains.

A teaspoonful of this is to be added to a pint of hot water, and at the same time another teaspoonful of benzoin may be poured in and the steam inhaled. Sometimes gargling with very hot water, to which has been added boric acid, is useful, or two teaspoonfuls of the following mixture may be placed in hot water and used as a gargle:

℞ Bromide of potassium, 1 drachm;
Hydrochlorate of morphine, 2 grains;
Antipyrin, 30 grains;
Hydrochlorate of cocaine, 2 grains;
Distilled water, 2 ounces.

In the early stages of the bronchitis without expectoration, but with cough, cherry-laurel water, paregoric, tincture of hyoscyamus, aconite or benzoate of sodium are useful. The following may be prescribed:

℞ Fluid extract of hyoscyamus, 1 drachm;
Cherry-laurel water, 3 drachms;
Syrup of tolu,
Syrup of orange flowers, of each 6 drachms;
Syrup, 4 ounces.

A dessertspoonful every two hours.

Or,

℞ Dover's powder, 30 grains;
Powdered squill, 20 grains;
Quinine sulphate, 30 grains.

Make into 20 cachets and take three to five a day.

Or the following may be employed:

℞ Hydrochlorate of morphine, 1 grain;
Hydrochlorate of cocaine, 2 grains;
Antipyrin, 30 grains;
Water, 4 ounces.

Three or four teaspoonfuls a day in a little hot whiskey or rum.

For bronchitis with abundant expectoration:

℞ Terpine hydrate, 4 grains;
Glycerin and syrup, a sufficient quantity to make one pill.

Three to five a day.

Or,

℞ Terpine and benzoic acid, of each 2 grains;
Dover's powder, 1 grain.

Make into one pill and take six a day.

—*Revue de Thérapeutique Médico-Chirurgical*, February, 1898.

The Therapeutic Gazette

EDITED BY
H. A. HARE, M.D.,
GENERAL THERAPEUTICS,
AND
EDWARD MARTIN, M.D.,
SURGICAL AND GENITO-URINARY THERAPEUTICS.

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Leading Articles.

THE NORMAL GASTRIC MOVEMENTS.

Notwithstanding the very numerous studies which have been made during the past ten years upon the processes of gastric digestion and upon the movements of the stomach, there yet remain large open spaces in our knowledge of the two physiological processes which we have named. The fact that the stomach is an internal organ which cannot readily be observed in its physiological activity has forced us to rely upon results obtained by the use of the gastric tube, or by the passage of esophageal and gastric bougies which have given us indefinite information; and yet as a matter of fact, physiologists have from the earliest times been interested in the two questions of gastric digestion and gastric movements. With the employment of the Roentgen rays in medicine new possibilities for the study of the action of internal organs have presented themselves, and some of the most useful results so far obtained in clinical medicine and physiology, from the use of these rays, are to be found in a paper contributed by Dr. W. B. Cannon in the *American Journal of Physiology* for May, 1898.

His experiments consisted in administering to cats food which had been mixed with subnitrate of bismuth, which latter substance is impervious to the Roentgen rays, and, by giving a sufficient quantity of food to practically fill the stomach, changes in the contour of this viscus were of course represented with the changes in the shape of the bismuth-laden food mass. A large number of animals were observed over a considerable period of time, and Cannon finds that the stomach consists, physiologically, of two distinct parts, the pyloric part and the fundus; and that over the pyloric portion when food is present, constriction waves continually course towards the pylorus. On the other hand, the fundus is an active reservoir for the food, and when salivary digestion is advanced this reservoir squeezes its contents out into the pyloric area. For a thorough understanding of his paper it is necessary for us to remember that he makes the following divisions of the stomach, namely, the cardiac portion, which extends from the left edge of the stomach half across its length, and the pyloric portion, which extends from this point to the beginning of the small intestine. This pyloric portion is, however, divided into two parts—the antrum, which is just at the beginning of the small intestine, and the preantral portion, which extends from the middle of the stomach nearly to the pyloric opening.

Cannon finds that the stomach is emptied of food by the formation, between the fundus and the antrum, of a tube along which constriction waves pass; that the food in the fundus is pressed into this tube and the tube and antrum slowly cleared of food by means of constriction waves. In other words, the pyloric half of the stomach, called the preantral portion, forms itself into a tube which conveys food from the fundus to the pyloric orifice. But the process of propulsion is not all from the fundus towards the pylorus. On the contrary, the food having passed through the tube in the preantral portion is once more pressed upon in such a way that the food returns backward along the path which it has followed and thus becomes thoroughly mixed with gastric juice, so that while its progress is ultimately towards the pylorus, this progress is for a time oscillating in character.

Again, he finds that the pylorus does not open at the approach of every wave bearing food, but only at irregular intervals, and, still

more interesting, that the arrival of a hard morsel causes the sphincter to open less frequently than normal and thereby the passage of the already liquefied food is delayed, for the solid food remains in the antrum to be rubbed by the constrictions until triturated into small particles, which are softened by the gastric juice. If, however, the morsel is too hard to be softened and digested in the stomach, it ultimately escapes into the intestine. Of still greater interest in connection with these studies are the observations which Cannon has made concerning the function of the fundus of the stomach. He finds that food in this portion of the viscus is not moved by peristalsis and is not mixed with gastric juice, but that the fundus forms a sort of pouch in which salivary digestion of the starches and general softening and maceration of the food can be carried on for a considerable period of time without being stopped by the acid gastric juice. This result is of interest, as it explains the clinical fact that both taka-diastase and pancreatin are known to carry on their digestive function in the stomach for a considerable period of time after food is taken, although theoretically the acid gastric juice should inhibit the activity of the pancreatin, at least. It also explains an interesting fact which the writer of this editorial has noticed in a number of cases, namely, that the stomach seems to possess the ability of retaining certain articles and of passing others into the small intestine. Thus if a purgative is taken after food has been swallowed and a copious movement of the bowels is produced within a few hours—as it is, for example, after the use of a saline purgative—none of the undigested food, at least in the normal individual, escapes from the bowel, whereas mucus and other materials are frequently washed out. In other words, it has seemed to the writer that the alimentary canal possesses a selective ability whereby it retains substances with which it has not finished its physiologic function and passes on those which do not need to be retained in the stomach.

We are wont to hear a great deal at this time of nervous dyspepsia, and undoubtedly nervous dyspepsia arises from the fact that so much nervous energy is expended in the ordinary pursuits of life that a sufficient amount is not reserved for the processes of digestion, and as a result digestion is impaired or entirely prevented. Cannon's studies indicate the fact that marked nervous excitement also inhibits the movements of the stomach. Thus Cannon found, when the cats upon which he experimented became irritable or showed any signs of distress, the digestive movements of the stomach were at once stopped, but as soon as the animals were soothed or their anger appeased, the digestive movements already described at once reasserted themselves.

It is studies such as these of Dr. Cannon which attract the practising physician to the study of physiology, a department of medicine in which many practising physicians are woefully ignorant because they do not understand the direct bearing of physiological knowledge upon the practise of medicine. Much of the so-called physiology taught in the medical schools is theoretical or so deep as to seem to have little bearing upon bedside experience, and we welcome these studies which, while scientific and accurate in the realm of physiological science, are also productive of increased knowledge which may prove of value to the sick.

THE VALUE OF METHYLENE BLUE IN THE TREATMENT OF ACUTE GONORRHEA.

A few years ago a substance known as pyoktanin was widely employed, in the treatment of the various septic conditions, as a mild germicide. It was also used as an antiseptic in various ailments and found favor in the eyes of many practitioners. A great difficulty with its general use was the deep staining of everything with which it came in contact, and this doubtless, more than any other reason, has prevented pyoktanin and similar drugs nearly related to it from being employed as widely as would otherwise be desirable. At the present time it would seem that methylene blue finds its chief usefulness in the treatment of malaria, when quinine cannot be taken, in the cure of severe neuralgia, and in the treatment of acute gonorrheal urethritis. Our attention has been called to the latter use of it by a paper recently published by Dr. Orville Horwitz, of Philadelphia, who has employed methylene blue in 105 cases of this disease with very satisfactory results, not only clinically, but also bacteriologically, in that examinations of the secretions and pus from the urethra show that the methylene blue exercises a distinct influence upon the gonococcus.

The dose of methylene blue which he used was two grains two or three times a day, but it is to be noted that about one-fourth of the

cases taking this suffered from slight diarrhea and strangury, under which circumstances the dose was decreased about one-half, and never did one-grain doses produce unpleasant result. Naturally the two-grain doses were more efficient when they were well borne by the patient. In all instances the urine became a deep blue hue owing to the drug being eliminated by the kidneys. Dr. Horwitz states that in four or five days the pronounced purulent discharge was changed to a slight mucoid excretion with a modification in all the inflammatory symptoms. The best method of administering methylene blue in Dr. Horwitz's opinion is in the following formula:

℞ Methylene blue, 2 grains;
Oil of sandalwood, 3 grains;
Oleoresin of copaiba, 3 grains;
Oil of cinnamon, 1 drop.
Mix. Dispense in capsule. One dose.

In addition to this capsule internally permanganate of potassium solution was employed for irrigation purposes, beginning with a strength of 1:2000 and gradually increased until the preparation reached 1:1000. Dr. Horwitz concludes his paper by the following summary, which expresses his opinion as to the value of this method of treatment:

1. That methylene blue is a germicide of great value in cases of acute urethritis, due to the presence of gonococci.

2. That it will not abort the disease, but will materially shorten its duration.

3. That it markedly lessens the tendency to complications.

4. That it is not to be employed in the treatment of acute urethritis, unless a bacteriologic examination demonstrates the existence of gonococci.

5. That the remedy should be employed as soon after the infection as possible.

6. That the proper dose with which to begin treatment is one grain three times daily, to be increased to two grains if the remedy is well borne.

7. That the beneficial action of methylene blue is enhanced and the duration of the disease is shortened by combining it with copaiba, sandalwood, and salol.

8. That the injections of potassium permanganate by means of a hard syringe, or if possible by irrigation, administered in the early stages of the disease, and followed during the period of decline by an astringent injection, have a marked tendency to lessen the duration of the malady.

9. That methylene blue always has the effect of turning the urine to a deep blue color. Of this fact the patient should always be informed to prevent unnecessary alarm.

10. That methylene blue is of no service in cases of non-specific urethritis.

THE VALUE OF JAMBUL IN DIABETES MELLITUS.

The fact that diabetes mellitus is in some cases a hopeless disease against which both physician and patient struggle without effect causes us to be continually on the lookout for some remedy which can be considered a specific, it being forgotten in many instances that in all probability diabetes is but a manifestation of a series of lesions rather than of a single pathological condition. Recently in the January issue of the *Indian Medical Gazette* Dr. Macphail speaks in a laudatory way of the influence of jambul in the treatment of this malady, although he admits that the patients return to say that while it temporarily relieved them, in many instances the symptoms recurred. In the same journal for March, 1898, Mitra, of Kashmir, in writing about Dr. Macphail's contribution, points out that this drug was first recommended by Banat Walla, whose experiences were recorded, and by Quantjer, of Batavia, and that in the *Practitioner* for January, 1891, Kingsbury and Mahomed published favorable results in isolated instances from its use; so, too, Lewischen in the *Berliner Klinische Wochenschrift* of February 23, 1891, and Dujardin-Beaumetz in the *Bulletin de Thérapeutique* for March, 1891, considered that this remedy in combination with a strict diet was useful in mild cases but useless in severe ones, which is practically equivalent to saying that it is of no value at all, for every one knows that in mild cases dietetics should be given nearly all the credit for any improvement.

Mitra tells us that a careful analysis of a large number of cases in India in which this drug has been tried under the most favorable conditions, the seeds being fresh, shows that it has no claim to be considered a cure for diabetes. He thinks that given a case of ordinary diabetes it may be well to try the fresh seeds with a strict dietary for a short time, and then if no value results we should cease its use at once.

These conclusions reached by Mitra are in accord with our own. In the few instances in which we have given this drug it has failed to produce any material influence.

Reports on Therapeutic Progress

THE USE OF HYDROCYANIC ACID AS AN ANTIDOTE TO CHLOROFORM.

FREDERICK HOBDAY, a veterinarian, writes a paper on this topic in *The Lancet* of January 1, 1898. He points out that the extreme frequency with which records of death from the anesthetic administration of chloroform appear in the professional journals must make welcome the addition of another antidotal agent to the list of those with which we are already acquainted. The idea of using hydrocyanic acid as an antidote to chloroform first suggested itself to the writer about two years ago when watching the different effects of the two drugs upon the respiratory tract when used to produce death, and particularly from having observed the powerful and rapid excitant result which follows absorption of a toxic dose of the acid. In 1896 there was published in detail a list of some forty-three observations upon various animals, including dogs, cats, a horse, sheep, and calf, showing the results obtained by this method of resuscitation and also a few cases illustrating the palliative and sedative effects produced on the respiratory efforts by chloroform inhalations upon animals suffering from overdoses of hydrocyanic acid. Since then the writer has been able to collect fifteen additional consecutive cases in which it has been successfully used in the college canine clinique after respiration had actually ceased, and he has also had confirmatory reports of its antidotal value from veterinary practitioners in various parts of the country. The results have certainly been in the highest degree satisfactory, so much so that when chloroforming animals the only antidotes they now have at hand ready for use are those of hydrocyanic acid and liquor ammoniæ fortior. As soon as breathing ceases or becomes dangerous artificial respiration is resorted to, the tongue being continuously pulled well forward in a jerky manner and a full medicinal dose of Scheele's acid placed as rapidly as possible at the back of the throat. When respiration has recommenced the ammonia vapor is applied cautiously to the nostrils, and in the majority of cases a safe termination ensues.

The method of artificial respiration preferred is that of laying the animal in a horizontal position on its right side and pressing the ribs in a short, sharp, jerky manner; they have tried everting the body, but the writer is convinced that this is a bad method in the dog and cat, as the intestinal organs press upon the diaphragm and limit the capacity of the thorax. They have also tried placing the body in the opposite position with the idea of removing all pressure of the abdominal organs from the thorax and its contents, listening carefully at the same time in each case to the heart sounds with the phonendoscope; but he is firmly convinced that the heart sounds are stronger and less labored when the body is placed horizontally.

When reasoned out theoretically, in addition to the results of practical work, hydrocyanic acid stands foremost amongst agents likely to prove of antidotal value; for what more rapid or powerful respiratory stimulant have we? Its use is attended with no more danger than that of strychnine—in fact, in the dog and cat with far less. Its rapidity of action is unquestionable, it is easily absorbed from any of the entrances of the body, and it has the advantage over ammonia that it does not irritate the tissues to which it is directly applied. Besides these things, not only has it an immediate effect in starting the respiratory mechanism, but when once this has commenced the stimulating effect of the acid is maintained for twenty minutes or half an hour and keeps going until the breathing is able to resume its normal aspect and the patient is out of danger. The writer is aware that many cases will recover by the aid of artificial respiration alone, but he is perfectly convinced from tests applied to this point, and from an extensive experience of the results which were obtained with other antidotes before hydrocyanic acid was tried, that the use of the acid gives an enormously higher proportion of successes. When compared with hypodermic injections of strychnine, ether, or saline solution, or the use of amyl nitrite or ammonia vapor, its effect is visibly much more rapid and powerful. Scheele's acid is of course more rapid and powerful than the British Pharmacopœia acid and acts best when given undiluted.

With reference to the method of administration the best way to apply it is undoubtedly by means of a graduated drop-tube on the back of the tongue. Hypodermic injection does not seem to give such good and rapid results, and the direct forcing of the vapor up the nostril by means of bellows is decidedly dangerous from the risk of administering an overdose. Full medicinal doses are necessary, as when an animal is under chloroform the effect of the acid is not visible

quite so quickly as when no chloroform has been used. If an overdose be given the judicious use of the anesthetic vapor will combat and quiet the spasm of the respiratory muscles until the excess of acid has had time to become eliminated from the system. In several cases the writer has had opportunities to test this before experience taught the exact dose. This latter averages in the dog and cat about one minim of Scheele's acid for every seven or eight pounds of live body weight. The object must be to give just enough acid to produce the preliminary excitant effect upon the respiratory center, and of course, like all antidotes, the sooner it is administered after dangerous symptoms have appeared the more likely is the result to be favorable.

THE USE OF VENESECTION.

La Presse Médicale of February 2, 1898, tells us that HERVIEU has reported to the Académie de Médecine of Paris that he has employed blisters or scarification to the abdominal wall with great success in the treatment of puerperal peritonitis. He has never seen the use of blisters produce nephritis or urinary symptoms.

[We doubt whether this treatment will be serviceable.—ED.]

THE TREATMENT OF CARDIAC COMPLICATIONS IN PREGNANCY.

In *La Presse Médicale* of February 2, 1898, VACQUEZ and MILLET give the following directions:

For the prevention of accidents from cardiac disease in gravid women two indications are necessarily carried: First, rest in bed; second, an absolute milk diet. These prescriptions should be adhered to for the period of five or six months; only a sufficient quantity of exercise being taken each day to maintain the health, and the heart being given a rest during the remainder of the twenty-four hours. Should there be any evidences of scanty urinary secretion theobromine may be given as a diuretic, and it may be necessary to give saline purgatives to relieve the bowels or the kidneys. These may be given every three or four days. Should the symptoms of cardiac disease manifest themselves in asystole, anasarca, hepatic and renal congestion, then digitalis in fractional doses employed as an infusion may be resorted to with advantage. At the same time it may be necessary to use venesection or active saline purgatives. Should there be pulmonary congestion, as a result of cardiac lesion, venesection, hot applications to the chest or wet cups may be needed. Theobromine should be given to stimulate the kidneys, and fractional doses of Dover's powder may be used with excellent results. Should the symptoms become very grave we may induce labor, using chloroform in small quantities and supporting the heart by preparations of digitalis. Although chloroform is supposed to be a cardiac depressant its use probably puts aside more danger than it itself causes, particularly if the heart is protected by doses of digitalis. So far as the prophylaxis of cardiac disturbances in pregnancy are concerned the authors quote Peter as having forbidden women with cardiac affections to marry. He, however, makes this rule: Permit marriage if the cardiac lesion is simple and there is no asystole. Oppose marriage if the cardiac lesion is complicated or associated with asystole, or if evidences of mitral regurgitation are marked.

THE LOCAL TREATMENT OF ACUTE ARTICULAR RHEUMATISM.

La Presse Médicale of February 5, 1898, gives the following treatment for this condition: The local use of an ointment composed of liquid vaselin one ounce, salicylate of methyl half an ounce; this is smeared upon lint and bound about the joint, and the lint is now in turn covered with gutta-percha. In other cases an ointment composed of salicylic acid, as follows, may be used:

℞ Vaselin, 1 ounce;
Salicylic acid, 45 grains.

In still other instances salicylic acid can be gotten into the system through the skin by the following means:

℞ Salicylic acid, 1 drachm;
Salicylate of sodium, 60 grains;
Extract of belladonna, 15 grains;
Vaselin, 1 ounce.

This is applied in the same way as the ointment of the salicylate of methyl.

Salol is said to be especially useful in gonorrheal rheumatism. It may be dissolved in ether and used in the following prescription:

℞ Salol, 1 drachm;
Menthol, 30 grains;
Ether, 1 drachm;
Lanolin, 1 ounce.

Guaiacol when locally applied is also a powerful pain reliever as well as an antipy-

retic. It may be painted upon the part in the following solution:

℞ Pure guaiacol, 1 drachm;
Alcohol (85-per-cent.), 1 ounce.

One-fourth of this mixture is sufficient for one application. Too frequent application of it will cause too great a decrease in temperature. After it is applied the part should be covered by an air-tight bandage. The following ointment may be used in its place:

℞ Guaiacol, 1 drachm;
Vaselin, 1 drachm.

Or the following used:

℞ Guaiacol, 1 drachm;
Salicylic acid, 30 grains;
Salicylate of methyl, 1 drachm;
Vaselin, 1 ounce.

This mixture is very active, but possesses an intensely strong odor.

Sometimes good results follow the application of the following prescription:

℞ Guaiacol, 1 drachm;
Terpinol, 3 drachms;
Alcohol (85-per-cent.), 4 drachms.

ON THE TREATMENT OF MALARIAL FEVERS.

M. C. Nanjunda Row, of India, writes on this subject to the *New York Medical Journal* of January 15, 1898. He advances a method of treating malarial fevers. According to this method, the dose of quinine required is not a large one; and the writer has had no occasion to give more than a gramme (fifteen grains) of quinine sulphate in one dose in even some of the refractory cases that he has had to deal with in those parts, and he has not met with a single case in which any ill effects of quinine were manifested—not even vomiting, which so frequently follows the administration of large doses of quinine.

The method is one advocated strongly by the late Dr. George Smith, once the senior physician of the General Hospital, Madras, and it depends on the fact that the best time for administering quinine is when the pathogenic germs are in the most weakened condition, and not when they are in a vigorous condition. Dr. George Smith, with a view to impress on his students the importance and reasonableness of his method of treatment, used to teach them graphically that the best treatment for malarial fevers was to "strike the enemy (malarial germs) when he is weakest, with the strongest weapon (a fairly large dose of quinine)," and that in all cases of malarial intermittent fevers the actual attack of rigors and fever was the result of the war that was taking place in the system between the malarial germs and the phagocytes, and the cessation of fever was an indication of the defeat of the enemy, caused partly by their destruction and partly by their being weakened. The interval indicates the rest and the time required for the growth of the younger germs and for the recovering of the lost strength by the weakened ones for a further attack, so that the enemy is in his weakest condition as soon as the fever begins to subside; and it is then that a large dose of quinine, the specific *par excellence* for malarial disease, is to be administered and its effect prolonged by frequent smaller doses at intervals of from four to six hours for some days after that. Whatever the explanation may be, such of us as have followed his directions have yet to find a case which has not yielded to this method of treatment.

The actual method employed by the writer in all cases of intermittent fevers is never to give quinine either before or during an attack. He always waits for the attack to subside before giving any medicine; and during the attack he allows the patient to have any hot drinks he may like, such as coffee, tea or warm milk, or iced water or milk if preferred. The writer never gives any antipyretics to bring down the fever, as he has always found that the reduction of fever by means of an antipyretic prevented somehow the full action of quinine, and recurrence of the attacks has been common only in such cases. But when the fever begins to subside in the usual course, and the patient begins to perspire freely and to feel free from headache and other uncomfortable symptoms, the writer gives him from ten to fifteen grains of sulphate of quinine for the first dose, and then five grains every four, five, or six hours after that (in many cases not more than four times a day) for a week at least, after which time he continues quinine in two-grain doses with four or five minims of Fowler's solution (liquor arsenicalis, B. P.) twice a day, after meals, for a fortnight longer.

If quinine is administered in this way it is very rarely that another attack occurs. In the writer's experience of many cases of malarial intermittent fevers of all types, he has not had more than five or six cases in which the attack recurred more than once, and those rapidly yielded to the quinine

similarly administered again. Larger doses than fifteen grains, as advised by Dr. Ballagi and others, are perfectly unnecessary and are chiefly instrumental in producing many of the ill effects of quinine poisoning, so to speak. As a general rule Row prescribes only ten grains of sulphate of quinine for an adult for the first dose, and it is only in rare instances that he gives fifteen grains, and he has had no occasion to use any larger dose than this, as by the use of this method the very next attack is invariably prevented.

The form in which he gives quinine is that of soft gelatin capsules containing measured quantities, or that of freshly made pills with glyceride of tragacanth, or that of wafers. It is only rarely he orders it as a mixture or solution, more especially in cases of children and others who cannot swallow a pill, however soft and small it may be. Though the solution of quinine does undoubtedly act much sooner and much more efficiently, it has two important drawbacks, viz., its bitter taste and its producing vomiting oftener than the capsules, wafers, or pills, freshly prepared. Certainly, as Dr. Ballagi says, compressed tablets and hard-coated pills are to be condemned, for he knows of a case in which a brother practitioner prescribed seven of these hard-coated pills of two grains each, and six of them were passed out in the patient's motions two days after, intact.

COLITIS.

In the *Birmingham Medical Review* for January, 1898, ARTHUR FOXWELL, in writing of colitis, has the following ideas to convey as to treatment. He says when you feel any certainty that you are dealing with a specific poison, then no doubt a specific remedy should be employed and chiefly depended upon. In acute dysentery, ipecacuanha has a specific value, and according to Kanthack and Caddy, the de-emetinized drug gives as good results as that retaining the emetin, whilst the painful depression and nausea of emetin is avoided. But even with amebic dysentery, ipecacuanha is by no means universally used. The French surgeons use it apparently chiefly for its emetic qualities and not as a specific. Bretonneau advised large doses of salines, whilst Leahy, of Hyderabad, saturates seven fluidounces of water with sulphate of magnesia, to the solution adds one ounce of dilute sulphuric acid, and gives half an ounce of the mixture every one or two hours. He says he thus treated ninety-five consecutive cases with only three deaths, and two of these three were brought to him moribund.

If there be no evidence of specific infection, then a good plan is the following: Administer a powder of morphine $\frac{1}{12}$ grain, hydrargyri subchloridi $\frac{1}{6}$ grain, every two hours by the mouth. By the bowel give every hour a two-pint simple enema, containing two ounces of boracic acid; this will soon be returned, and after its return give a pint enema of starch containing ten drops of laudanum. As nourishment, small quantities of brandy mixture every hour, with plenty of bland liquid and frequent ounce doses of well cooked sago, arrowroot, or custard. If there be much pyrexia or any localized abdominal tenderness, then ten to thirty leeches over the tender spots will be efficacious in relieving pain, pyrexia, and diarrhea. Constant hot fomentations to the abdomen no doubt ease the pain. As far as possible there should be complete rest in bed. In the chronic stage liquid, bland, unstimulating food should alone be taken; skim milk acts excellently. Calomel, rhubarb, or other hepatic stimulant should be taken frequently in small doses, for there is a great tendency to congestion of the liver, probably from toxic absorption. The bowels should be kept open daily; for this purpose a drug which increases peristalsis is the most useful. The writer has obtained the best results with cascara and belladonna. Even in the chronic non-amebic varieties he has found moderate doses of de-emetinized ipecacuanha of considerable service, given thrice daily for a week at a time. But persistent antiseptic enemata with occasional injections of nitrate of silver, sixty grains to the pint, is the treatment which seems most rational, and that which has proved most successful.

Massage of the abdomen, though it has soothed pain, has not in the author's hands had much curative effect. Both it and enemata are liable to produce perforation if roughly administered. Lying out-of-doors on a couch for most of the day is perhaps the most excellent of all methods of cure, and if the patient be warmly clothed with flannel, it is quite without danger.

But whatever be done, colitis is a very stubborn disease, just as is its congener appendicitis. Both are sadly given to relapse, and with each relapse we are confronted with the danger of perforation. Unfortunately, as we now think, we cannot remove the colon as we can the appendix. However, this may

not be an unmixed evil, for the after-history of the amputated appendix has yet to be written.

The writer is not at all sure whether it would not be wisest, as soon as a case has become chronic, to do a right colotomy both for the purpose of relieving the colon of fecal irritation and, more important, to enable astringents and antiseptics to be thoroughly applied to it. This treatment has already been suggested and successfully carried out by Mr. Mayo Robson. The writer doubts if it is ever of much value to do it for late obstruction or peritonitis; the gut is then too deeply and extensively diseased for any curative treatment; the result, at the best, can only be the annihilation of the large intestine and the formation of an artificial anus in the right inguinal region; but even this is little more than a pious aspiration, for five feet of deeply ulcerated and often sloughing intestine is not likely to lie encircling the belly in placid effacement.

Performed at an early stage and well followed up with persistent cleansing and stimulation, this method of treatment holds out great prospect of cure. For this early performance we want absolute certainty of diagnosis, which is often most difficult or impossible to attain; further, we require to know the degree of the lesions already inflicted—a still more arduous task. Unless we know these two things we cannot with any confidence reassure the patient as to the temporary character of the artificial anus, and if we are unable to do this we can scarcely wonder at his refusing to suffer so grave and disgusting a mutilation.

TINCTURE OF MYRRH IN DIPHTHERIA.

Dr. STRÖLL, writing in the *Allgemeine Medicinische Central-Zeitung*, very strongly recommends tincture of myrrh in diphtheria. The mixture he uses is composed of tincture of myrrh 4 parts, glycerin 8 parts, and distilled water to 200 parts. This is given very frequently—every hour or even every half hour in the daytime and every two hours at night, infants up to the age of two taking a large teaspoonful (seventy-five minims), older children double that quantity, and adults three times as much. This is continued until the membrane has nearly disappeared, when the doses are only given every two hours. After all the membrane has gone the treatment is continued for a couple of days, the interval between the doses being increased to three hours. This, of course, is with the view of preventing any recurrence. Usually the fever and lassitude disappear in twenty-four hours, so that a child may frequently be found within that time sitting up in bed playing. He says that there does not seem to be any need for local treatment, but in the case of older children and adults a gargle containing one-half per cent. resorcin may be employed every hour or oftener in the daytime, and where it is desired the tonsils may be painted every hour with the tincture of myrrh undiluted. Where the larynx is involved Dr. Ströll prescribes the myrrh and glycerin mixture in an inhaler or spray to be used every half hour. By the employment of this method Dr. Ströll states that he has only lost one case out of eighty, and he has collected reports from several other practitioners in various parts of the world who have treated altogether 182 cases with 22 deaths. No mention, however, is made in his own or in the other cases of bacteriological verification of the diagnoses. The *rationale* of the efficacy of myrrh is supposed to be that this drug increases the phagocytic elements in the tonsils.—*The Lancet*, Jan. 1, 1898.

ESSENCE OF NATURAL WINTERGREEN AND ESSENCE OF ARTIFICIAL WINTERGREEN IN THE TREATMENT OF RHEUMATISM.

VIDA writes that he has substituted since the month of July, 1896, the application of compresses soaked in essence of wintergreen for the ingestion of salicylate of sodium in rheumatic patients whose digestive tubes and nervous systems it was important to consider. He noted at the onset in a certain number of patients some cutaneous manifestations varying from simple temporary erythema to the reappearing papulous eczema. In all the rheumatic patients the essence of wintergreen was applied according to the process become classic of 50 to 100 drops poured upon a double fold of aseptic gauze and covered by an impermeable material applied for some hours either to the forearm or to the leg, and renewed twice every twenty-four hours. Surprised at these cutaneous accidents which manifested themselves, especially in a series, and which could not be imputed to an exaggerated susceptibility of the integuments of these patients, the writer sought for their cause and arrived at the following conclusions:

There exist now in commerce two essences of wintergreen indifferently utilized in the drug business, and differentiated only by their price, varying from the single to the double. The one, the natural essence of wintergreen, is of a reddish-yellow color, having an oily odor, essentially extracted by distillation from the gaultheria procumbens or palommier, and is a mixture of hydrocarburets not yet perfectly defined and of methylic salicylate in the proportion of nine-tenths. The other, the artificial essence of wintergreen, is colorless, with an acrid odor, empyreumatic, recalling the odor of coal smoke, is pure methylic salicylate, and is obtained synthetically. On simultaneously applying to the two forearms of a rheumatic patient according to the method already described some compresses, the one soaked with the natural essence and the other with the artificial essence, it may be easily noticed that no reaction is produced upon the section of the member in contact with the pure methylic salicylate. The part treated with natural essence of wintergreen is, on the contrary, more or less red, painful, and covered sometimes with rubeoliformic eruption. Methylic salicylate cannot have a different action according to the product employed. It is, then, necessary to conclude that the irritating action of natural essence of wintergreen is due to resins of an undetermined nature (gaultheriline, etc.) mixed with the salicylate. It is important, in order to avoid all irritating action appearing to counterbalance the excellent effects of this cutaneous medication, to renounce the vague appellation of "wintergreen," which leaves to the preparer the choice of employing the natural or artificial essence, and often of mixing the two essences delivered by the producer, and to prescribe the pure methylic salicylate deprived of all irritating action and not leaving any doubt as to the product to be employed. — *The Lancet*, Jan. 1, 1898.

THE PRINCIPLES WHICH GOVERN TREATMENT IN DISEASES AND DISORDERS OF THE HEART.

The *British Medical Journal* for April 2, 1898, contains a lecture on this subject in which DOUGLAS POWELL tells us that the most common mistake that one observes in the use of digitalis is that too large a dose is prescribed at first, which tends to premature arterial contraction and cumulative effects. Then, with the appearance of these physiological symptoms the drug is stopped, and some other medicine substituted, until the pulse again calls for its administration. In this haphazard way of using digitalis the heart is never held in good control. In exceptional cases, where there is urgent need to push the drug, digitalin is best used subcutaneously. In ordinary cases a dose of ten minims of the tincture every four, or fifteen minims every eight, hours, or five minims every waking hour, is sufficient. Thus given, the patient being at rest, it generally takes about three days before the pulse is under control, and the urine begins to increase. When its decided effects are thus gradually developed the drug should be steadily continued, in doses calculated to maintain its effect. With ordinary watchfulness there is no risk whatever; timely warning of excess is given by the pulse, which having become slow begins to exhibit small intermediate beats, and especially a tendency to go in couples. This is always a sign to reduce the doses or to omit for a few hours. The sickness that occasionally—too often—supervenes with digitalis is most troublesome. An occasional mercurial will sometimes prevent it, a change to digitalin in equivalent doses may be tried, or a tumbler of very hot water taken occasionally. In some cases it is not to be overcome except by omitting the drug; the patient is usually well under the influence of the drug before this symptom appears, in which case a small dose of digitalin by the mouth or hypodermically may be sufficient to maintain its effect on the heart.

In speaking of digitalis, Powell has regarded that drug as representing the whole therapeutic group. Digitalis is so far in front of all the others in efficacy that in critical cases he never thinks of prescribing any other member of the group before it. Strophanthus comes next to it in usefulness, and in physiological experiment is even more powerful. Clinically, one is not so well satisfied with it, and this may possibly be prejudiced, but he has had doubts about its stability in prescriptions. It causes the same troublesome nausea. The one reason for its use is that it affects the small vessels less and this gives it an advantage in some cases, particularly perhaps in carrying on the effects of digitalis in convalescent aortic regurgitant and mitral stenosis cases. But as he has endeavored to point out, under most conditions calling for its use this very action upon the arterioles is one of the valuable attributes of digitalis, and explains, possibly, its superiority over strophan-

thus. He frequently, however, combines the two drugs when he wants to secure an increased cardiac effect without using digitalis in doses large enough to contract the vessels too much. Convallaria comes next for mild cases, and he has occasionally used sparteine. One may observe that the earliest sign of amendment in cardiac failure is an increased flow of urine. A somewhat analogous relief of the stress of symptoms will often be observed with the commencement of dropsical cellular and peritoneum tissues. The peculiar restlessness and discomfort that precede the onset of dropsy are sometimes very remarkable, and the dropsical effusion should rightly be regarded as one of those compromises of Nature which enable the vital machinery to go on a little longer. Dropsy is due primarily to a leakage from the congested capillaries into the cellular tissue. It is also due to a retarded removal of the fluids by the lymphatic vessels.

PHYSIOLOGICAL EXPERIMENTS WITH INTESTINAL IRRIGATION ON PULSE TENSION, TEMPERATURE, RENAL SECRETION, AND INTESTINAL ABSORPTION.

The *New York Medical Journal* of January 29, 1898, contains an article by KEMP on this topic. He finds that hot irrigation, 110° to 120° F., when prolonged, increases the temperature of the body and blood. The increase of blood temperature is possibly due in part to the contiguity of the solution to the great vessels, as there does not seem to be a proportionate ratio of increase of the temperature of the body to that of the blood if due merely to effect on heat centers. In other words, the influence on the blood temperature seems to be greater in proportion than it does on that of the body. The heated blood would undoubtedly be of value in stimulating the heart, and this shows the further advantage of irrigation at a high temperature in shock and allied conditions.

If the patient's temperature is already high, it might be dangerous to irrigate with fluid at a high temperature for fear of increasing the temperature of the patient.

Cold irrigation reduces temperature, and is depressing after twenty to twenty-five minutes. At first, cold acts as a stimulant.

Clinically, irrigation at a high temperature has proved to be excellent in shock and allied conditions, as stated above. Chapin has employed cold enemata in the diarrheas of children to aid in the reduction of temperature, and with success. Cold irrigation has also been employed in dysentery for this purpose with good results. Cold irrigation might be employed in sthenic cases to reduce temperature, if used with caution, for five to ten minutes. Friction of the limbs during its application would be advisable, as during the Brand bath. He states that he would not care to employ at the start a temperature below 60° to 70° F. He refers to high intestinal irrigation. It would probably be safer also to use it at first for only two to three minutes.

On the other hand, he has seen benefit in jaundice (duodenal) from the cold irrigation briefly employed (two quarts), or from the alternate hot and cold douche (two quarts each) for chronic constipation. A glass Y-attachment, as suggested by Dr. John Minor, is suggested for this purpose.

Cold rectal irrigations are much safer, and he has seen iced water so applied for thirty minutes in a congestive condition of the rectum, and with great benefit. Some, however, have a marked idiosyncrasy to cold of any degree, and it should therefore be employed with caution.

Hare reports a rise of 4° to 5° F. in dogs after twenty minutes' irrigation, with a temperature of 115° F.; also a marked fall of temperature, practically shock, after the use of cold for twenty to thirty minutes. He does not state whether or not the animal was covered, nor the temperature of the room; which facts make a considerable difference.

The writer states that his own experiments agree with Hare's in regard to the cold, but differ in degree, as regards the effect of the heat on the temperature—quantitatively, not qualitatively—in the result. He believes that without doubt the prolonged irrigation has, at the high temperatures, an influence on the body temperature. The cold irrigation, when prolonged, is undoubtedly depressing.

In ten minutes irrigation at the higher temperatures, especially at 110° to 120° F., stimulates the kidneys to secretion by the heat, and by the stimulating effect on the circulation, also by the heat, blood flows through the organs.

In twenty minutes, irrigation at 100° to 120° F. causes excretion from the kidneys actually through absorption from the intestines, as is shown by potassium ferrocyanide experiments.

Dr. L. Bolton Bangs has administered ene-

mata of iodide of potassium and secured reaction in the urine in twenty minutes.

Clinically, hot saline irrigation is an excellent remedy in uremic suppression, or in cases of renal insufficiency.

Dr. Egbert Grandin has had excellent results from this procedure, and has been advocating it for some time past. Dr. William H. Thomson has employed it with success when other means have failed. They both report excellent results, profuse sweating and bowel action accompanying the renal secretion. Dr. Thomson has employed saline irrigation at 101° to 104° F. with gratifying results recently in an obstinate case of renal insufficiency where other remedies were a failure.

Renal disease with polyuria as a symptom would seem to contraindicate this method, or that it should be cautiously used and for short periods. This statement has special reference to a case of enlarged prostate, in which prolonged irrigation was employed. It aggravated the polyuria and had to be stopped.

It will be specially noted that no reference has been made to the effect of cold irrigation on renal secretion or intestinal absorption; for Kemp considers it a dangerous procedure. Experiments were made in this regard, but the author has kept them apart. Enemata of cold water at different temperatures will be absorbed from the intestines and, as in experiments with hot saline with potassium ferrocyanide, urinary reaction will occur in about twenty minutes, giving the blue with chloride of iron. On the other hand, cold irrigation will for a short time stimulate the circulation and increase secretion, but in about twenty minutes pulse tension will fall, the animal will go practically into shock, and renal secretion cease. We will thus have renal suppression plus shock, or be worse off than before, and the cold will aggravate the suppression.

Cold irrigation is absolutely contraindicated in renal disease—also cold enemata.

THE CLINICAL VALUE OF DIPHTHERIA ANTITOXIN ADMINISTERED PER OS.

ZAHORSKY, of St. Louis, concludes as the result of some experiments that diphtheria antitoxin acts similarly whether given by the mouth or subcutaneously, but its effect occurs much later when given in the former way.

It is possible that the intestinal epithelium refuses at certain times to take it up, and therefore it is a less reliable method.

This mode should be employed in mild cases when objections stand in the way of its hypodermic use. It may be also used in mild cases in adults.

Its use by the mouth as a prophylactic measure is to be recommended, as it presents many advantages. However, if the child has been exposed to diphtheria for as much as two days the hypodermic method should be employed.

Joint pains, erythema, urticaria and dysmenorrhea are not prevented.

From a clinical standpoint, therefore, it is to be urged that for curative purposes the administration by the mouth should be restricted to exceptional cases; but for prophylactic purposes this method should receive the preference.

THE LOCAL TREATMENT OF PAINFUL ULCERATIONS BY ORTHOFORM, WITH SPECIAL REFERENCE TO THE UPPER AIR-PASSAGES.

YONGE writes of this new drug in the *British Medical Journal* of February 5, 1898. The anesthetic presents a triple claim to recognition, in that it is sparingly soluble, is non-toxic, and is powerfully antiseptic. On the other hand, it is a disadvantage that the substance will not act on unbroken skin, nor, with certain reservations, on intact mucous membranes, for its strong anesthetic properties are only manifested where nerve endings are exposed. The slow solubility leads the anodyne to exert its action economically on the tissues, and unlike its rapidly soluble congener, cocaine, only sufficient is dissolved to produce and keep up local insensibility, which therefore becomes prolonged. In from five to ten minutes after application anesthesia of the denuded surface to both touch and pain commences, and it reaches its consummation within a short period of time. The effect lasts from a few hours to five or six days, and there is, in the majority of cases, perfect or nearly perfect analgesia, the patient experiencing the sensation of the offending part having been cicatrized over or "enameled." Suppuration is usually markedly diminished and healing accelerated.

The action of orthoform on the unbroken mucous membrane of the mouth, nasopharynx and larynx is, in the author's experience, as follows: Neither the free orthoform (basis powder) nor the hydrochloride anesthetize sufficiently to allow of surgical action. When

applied to the tongue, inner surface of the cheek, or to the pharynx, a numb sensation supervenes in the course of about five minutes, but there is little real anesthesia. The effect on the larynx is to reduce reflex irritability. A peculiar feeling, described as similar to that produced by cocaine, is experienced in five minutes; in a few more minutes this relative loss of sensation vanishes, but if before its subsidence a probe be introduced and the vocal cords and interior of the larynx touched, although a species of "gagging" ensues, there is no laryngeal spasm or cough. In the same patient a similar procedure without the previous introduction of orthoform causes intense discomfort and a fit of coughing. The intact nasal mucous membrane is also slightly amenable to the influence of the drug. A feeling of numbness is evidenced in about two minutes, and this merges into real anesthesia, which is, however, feeble and transient.

Yonge has had the opportunity of testing the anesthetic value of orthoform in eighteen patients who suffered from painful ulcerations of the upper respiratory tract, and a few representative cases are quoted.

Toxic effects were not noted in any of the cases, but there was occasionally some slight burning for a few minutes after the application of the hydrochloride. This failure to discover toxicity is compatible with the statements that over twelve drachms has been sprinkled on a broken surface in the course of a week, also that thirty to sixty grains have been administered to rabbits, and forty-five to ninety grains to dogs, without evil effects during life or the post-mortem discovery of visceral changes. Orthoform fails to produce any results on an ulcer unless the dual precaution is taken to apply the drug directly to the loss of surface and to insure its retention there.

No relief was experienced by patients suffering from either catarrhal pharyngitis or quinsy.

The antiseptic action of orthoform appears to be demonstrated by the rapid diminution of purulent exudation in several of the cases encountered, and the speedy healing of the ulcer. In a case of acute gonorrhea injections of orthoform solutions were followed by the disappearance of gonococci in four days, and the complete cessation of blennorrhagia.

Finally, if further observations confirm the results already published, it would appear that orthoform is entitled to take a position among the local anesthetics applicable to the upper air-passages. It seems probable that it will replace—by virtue of its insolubility and innocuousness—its relative, cocaine, when long anesthesia on ulcerated surfaces is wished for.

LOCOMOTOR ATAXIA IN ITS MODERN ASPECT.

F. M. Langdon tells us in an article contributed to the *Medical Record* of January 8, 1898, that in the modern treatment of tabes the old idea of giving "alteratives," mercury and potassium iodide for their (doubtful) absorbent effect on cicatricial tissue is giving way to measures addressed to the nutrition of the neuron.

There being no syphilitic exudation in true tabes, antisyphilitic treatment is uncalled for. Diet, hygiene, rest, are the main factors in the successful management of the disease. Digestion, assimilation, elimination, must be promoted. Climate, medicines and electrotherapy are of distinct value.

Distressing symptoms, the "lightning pains," "ataxia," etc., are to be alleviated without impairing the general nutrition. Opiates had better be avoided.

Rest in bed is a valuable measure when obtainable. The patient should sleep much and work little. When complete rest is not practicable, a few extra hours daily in the horizontal position is advisable.

The diet should be liberal—meats, fats, milk, water in abundance, and fruits, with a minimum allowance of starchy and saccharine foods. Alcohol is to be prohibited.

The patient should wear warm clothing, and if possible spend his winters in a warm climate. Measures addressed to the elimination of auto-toxins generally by the skin, kidneys and bowels should be instituted.

Drugs of more or less use in the treatment are those of nutritional value, mainly phosphorus, iron, cod-liver oil, with tonics such as strychnine.

For the lightning pains aluminum chloride (dose, two to four grains in water) is a drug of considerable value. Dr. Gowers originated its use for this purpose.

Electricity is of distinct value in a large proportion of cases. Ordinary faradism is useless, galvanism better. The writer's experience has led him to value highly that form of electricity known as the "sinusoidal" current. It is a current of "high potential" (voltage), rapid alternation (480 to 1920 per second), and comparatively small "quantity"

(amperage). Its application is simple and controllable, as well as pleasant to the patient. It is administered by means of a "foot-plate" and a neck electrode for from five to fifteen minutes every alternate day for six weeks. Under its use, with simple hygiene and often without drugs, the lightning pains cease, the ataxia of gait and station disappears, and the well-being of the patient is promoted. These effects would seem to indicate an actual improvement in the nutrition of the peripheral sensory neuron, with capacity for better function in some, possibly restoration of damaged nerve endings in others. This six weeks' course of treatment may be repeated once or twice yearly, as indicated, with advantage to the patient.

Patients treated by the foregoing methods have been under observation for nearly two years without relapse of pains or ataxia, and with full capacity for ordinary business affairs. All cases are improved, some more than others, depending on the stage and extent of the disease. Many additions to cases formerly cited might be made, but space and time forbid.

In conclusion, it may be stated that, by reason of clearer conceptions of its pathology, leading to a more rational therapy, locomotor ataxia becomes a more hopeful disease to treat.

TREATMENT OF LUPUS BY CONCENTRATED LIGHT.

N. R. Finsen, of Copenhagen (*Semaine Médicale*, 1897, No. 59), who some time ago published an account of the red-light treatment of variola, has now utilized the light rays, which he found so injurious in smallpox, in the treatment of lupus vulgaris. The action of light as a disinfectant and bactericide has been recognized by many investigators, especially recently by A. Ransome in regard to tubercle bacilli. It is, therefore, very interesting to hear that Finsen, by means of a simple apparatus, has concentrated the rays—either sun rays or electric arc rays—on patches of lupus, and in most cases has obtained satisfactory results. R. L. Bowles has pointed out that the rays at the violet end of the spectrum—or "chemical rays," as they are termed—probably penetrate more deeply than do rays in other parts of the spectrum, and one would think that the almost translucent material of lupus granulations would be more suited to transmit them than ordinary skin. There seems nothing improbable in the view that the concentrated light rays, at least the "chemical" ones, actually reach the tubercle bacilli which cause the cutaneous affection, and gradually kill them if the lupus granulations be not too opaque. Finsen's paper is illustrated by some of the results he has obtained.—*British Medical Journal*, Jan. 29, 1898.

THYROID TREATMENT IN INSANITY.

Gerver (*Obozrenye Psychiatryitk*, November, 1897) has tried the effect of Poehl's thyroidin in ten cases of insanity. The patients included three cases of acute primary dementia, three cases of melancholia, one case of recurring mania, one case of delusional insanity, one case of organic lesion of the brain, and one case of epilepsy. To begin with, two grains of thyroidin was administered twice daily, and the dose gradually increased to ten grains given three or four times a day. The treatment was continued for about six weeks, but in one case, that of organic cerebral lesion, it had to be discontinued earlier, as it caused too much gastro-intestinal disturbance. The result of the trial was disappointing. Only two of the patients benefited by the treatment, and even in them some doubt was felt whether the improvement was due to the thyroidin or whether it occurred in the natural course of the disease. The successful cases were one case of melancholia in a lady, aged seventy-two, in whom the disease disappeared a year previously without any thyroidin treatment, and the case of delusional insanity in a middle-aged man, who stated that he felt the strong stimulant effect of the thyroidin. During the treatment some peculiar physiological effects of thyroidin were observed in all the patients. Their pulses were increased, and they all lost weight. The temperature, sleep, and appetite were unaffected. Salivation was observed in one case, and twitchings of the facial muscles in another.—*British Medical Journal*, Jan. 29, 1898.

THE LITHOTOMY POSTURE IN PARTURITION.

Dr. Oscar Schmidt, of Moscow, contributes an article on this subject to the *Centralblatt für Gynäkologie* of November 27, 1897. He says that he has made use of this posture for about eight years past, employing it while the head is in the pelvic cavity and when it is at the outlet. The patient lies on her back, lengthwise of the bed, and at the beginning

of a pain two persons, usually the physician and the midwife, standing one on each side of the bed, seize the patient's legs, bend her knees to the utmost, spread them apart as much as possible, and flex the thighs on the pelvis as in the lithotomy posture, at the same time everting the toes. That one of the physician's hands which is not employed in holding a knee may make pressure upon the child's breech, and so strengthen the action of the abdominal muscles. When the pain subsides, the limbs are allowed to resume their natural posture in the bed. The author thinks the favorable effect of this procedure is demonstrable. In the case of a primipara, he says, the segment of the fetal head that appears at the vulva during a pain is much larger than when she simply lies on her back. The difference is seen most strikingly in multiparæ when the head is in the pelvic cavity, and often very few pains with the woman in the lithotomy posture suffice to complete the birth. Almost without exception, says Dr. Schmidt, the patients take kindly to this procedure, and he has even observed, in cases in which it was an object to delay the expulsion of the child, so that he has omitted to resort to it, that the patient herself would assume the posture voluntarily during the pains, holding her knees with her own hands. He adds that since he adopted this device the occasions of his having to resort to the forceps operation, either high or low, have been reduced to a minimum, and almost without exception they have been brought about by pathological conditions.

Dr. Schmidt thinks there are several reasons why this posture facilitates the process of parturition. In the first place, he says, it increases the intra-abdominal pressure, but, what is of greater consequence, it enlarges the pelvic outlet. He refers to experiments made by Walcher, and others by Klein, accounts of which were published respectively in 1889 and 1891, showing that the articulations of the pelvis, especially the sacro-iliac, possessed a certain degree of mobility. With the sacrum fixed, the symphysis pubis may be moved up and down a little. The center of rotation is situated behind and beneath the promontory of the sacrum. The authors mentioned, says Dr. Schmidt, gave their chief attention to the conjugate diameter of the pelvic inlet, as being the most important obstetrically, but Klein measured the transverse diameter also. The conjugate diameter of the pelvic outlet, says Dr. Schmidt, the distance from the tip of the coccyx to the lower border of the pubic symphysis, unfortunately, is not mentioned by them, and the same is true of the transverse diameter, the distance between the tubera ischiorum. We know, says the author, that when the symphysis sinks as much as it can the conjugate diameter of the inlet is increased; when it is raised as much as it can be, as in the lithotomy posture, that diameter is diminished. It follows as a logical consequence, he thinks, that the reverse must happen to the conjugate diameter of the outlet. Whether or not there is at the same time a greater separation of the tuberosities of the ischia, he adds, has not been directly ascertained; in only one of Klein's experiments on corpses was such an effect shown, and that but to a small extent. However, Dr. Schmidt himself believes that it does occur, judging from the fact that in cases of symphyseotomy the maximum separation of the pubic bones is obtained by resorting to the lithotomy posture. The same thing has been observed by Biermer in experiments on the dead body. The tendency of the pelvis is, therefore, to expand laterally in this posture; unfortunately, as yet no measurements of the degree of pelvic mobility in the dead bodies of freshly delivered women have been made. The pelves that Klein dealt with did not include one of a pregnant or lying-in woman, and so we may explain the fact that his observation of the comparatively small change in the conjugate diameter on changes of posture does not tally with the observations of clinicians. We are leaning more and more, says Dr. Schmidt, toward the view of the old obstetricians, that Nature makes the pelvis movable for parturition; Driver observed the fact in three hundred lying-in women.

The lithotomy posture has been employed in labor by others. Dr. Schmidt refers to its use by Remy, who has the patient lie crosswise of the bed, and straps her thighs to her body with two bands of sticking-plaster. The author thinks his intermittent method must save the woman some discomfort. Especially in primiparæ, he says, in whom there is so often a disproportion between the size of the head and that of the vulva, compelling the physician to resort to the forceps, it cannot fail to be an advantage to have at command a procedure that the patients regard as a "natural" mode of delivery. Frequently a unilateral incision answers in cases in which the forceps might do great injury to the vagina and perineum. — *New York Medical Journal*, Jan. 8, 1898.

THE INJECTION OF STERILIZED OLIVE OIL WITH GUAIACOL AND IODOFORM IN TUBERCULOSIS.

A. BRETON, of Dijon, publishes an article on this subject in the *Journal des Praticiens* of December 19, 1897. He first calls attention to the fact that he published an article upon this topic during the last year, in which he reported 550 injections of sterilized olive oil with guaiacol and iodoform. The formula which he employs is:

℞ Iodoform, 15 grains;
Guaiacol, 75 grains;
Sterilized olive oil, 3 ounces.

One to one and a half drachms of this is injected at a dose and, he asserts, without danger. He records 424 injections given to eighteen patients suffering from pulmonary tuberculosis, and claims that the effects are distinctly favorable. He also records the history of nine of these patients, giving more minute details as to the results which he obtained. These consist chiefly in showing that there was an amelioration of all the pulmonary symptoms and a general increase in weight. The injections should be given into the loose connective tissues of the back, or shoulder, or thigh.

Careful asepsis should be maintained. Two patients who were suffering from diarrhea developed a scarlatiniform eruption after the guaiacol had been employed. This erythema was intensely itching and lasted three to five days in its acute phase, with slight fever, but entirely disappeared eight or nine days after the injection. Breton is inclined to believe that the intestinal disorder was responsible for it.

MUSHROOM POISONING.

There is only one rule to be followed in avoiding poisonous mushrooms, and that is to know that the particular variety is safe because it has been eaten with impunity. That is, the one who picks mushrooms should be able to say that he knows a kind to be good, not because it has this or that characteristic, but because he recognizes it as one that he has tried. He should know it in the same way that he knows he is picking blueberries or whortleberries and not the berries of the deadly nightshade. Those who go by any rule of thumb, such as the color of the gills or the presence of rings on the stem, or still more by such crude tests as the discoloration of a silver fork cooked with the mushrooms, will be likely to come to grief sooner or later.

It is to be remembered first of all in dealing with the subject of mushroom poisoning that these fungi are easily decomposed, and being largely nitrogenous may readily become the cause of ptomaine poisoning. Murrell warns particularly against this and urges that great care should always be taken that mushrooms are fresh when cooked; to warm them over he considers a dangerous practise. Ptomaine poisoning from mushrooms would be like that from the development of tyrotoxicon in milk products, and would take the form of an acute gastro-enteritis beginning within a few hours after the ingestion of the poison.

Quite different from this is the typical mushroom poisoning, whose cause as far as is known is muscarine, first described by Schmiedeberg as a colorless, syrupy mass, without odor or taste, and easily soluble in water or alcohol. An account of six cases of this form of poisoning was given last summer by Dr. Caglieri, of San Francisco; it illustrates well the peculiar delay in the action of the poison. The six cases all occurred in one family and three were fatal. The mushrooms were eaten at about six in the evening. The first symptoms appeared in all the cases during the forenoon of the following day, and took the form of vomiting and diarrhea. In most of the cases these symptoms were slight. All felt dull and stupid on awakening, and there was a feeling of dyspnea which led them to seek the fresh air. One patient, a child, died during the evening of this day with convulsions. The two others who died (also children) showed no serious symptoms until the morning of the second day. At this time there was mental dulness increasing to stupor, rapid, empty pulse, contracted pupils, irresponsive to light, rapid respiration, suppression of urine, and free perspiration. One died on the second, one on the third and one on the fourth day after the poisonous meal. The fatal dose in all of these cases was but a small one—in two cases but one-half of a medium-sized mushroom, and in the third case but one-sixth. The members of the family who escaped ate as much or more of the mushrooms, and it is supposed that there were but one or two poisonous fungi in the dish; that those who died ate these, while the others ate good mushrooms that were rendered somewat poisonous by being cooked together with the bad. Muscarine is present in the dry fungus of the commonest poisonous variety (the Amanita) in the proportion

of only one-fifth of one per cent., so that the fatal dose, which has never been accurately determined, must in the light of these cases be a small one.

The physiological antidote of muscarine is atropine, which should be given in full dose, say one sixtieth of a grain, and repeated if the pupils are not dilated by the first dose. With this should be given strychnine and such other stimulants and heart tonics as are usual in the treatment of poisoning by depressants.—*Northwestern Lancet*, Jan 1, 1898.

THE TREATMENT OF DELIRIUM.

The *Medical News* of February 26, 1898, contains an article by COLLINS on this topic, in which, after wandering over a very large subject, and touching here and there some of the more important points, he makes a few direct remarks on the treatment of delirium, fully cognizant that therapeusis must vary in every case, and that the indications in one kind of delirium may not suffice or be sufficient in another. Nevertheless, there are a few underlying principles in the treatment of all deliria, and it is these which he endeavors to lay down, prefacing his remarks by saying that sedatives are used too frequently and too indiscriminately. Bromides especially are frequently given offhand, in large doses, and over quite an extended period, apparently forgetful of the fact that they may, by adding to the vascular depravity which is so often at the bottom of the delirium accompanying asthenic states, intensify and prolong the duration of the symptoms for which they are given.

The general indications in the treatment of delirium are, first, to secure sleep; second, to overcome motor unrest; third, to prop up and maintain the patient's vitality by contributing to his nutrition; and fourth, to discover and remove the cause upon which the delirium is dependent.

To meet the first indication hypnotics are almost always required, although it should never for a moment be forgotten that an hour's sleep induced by measures taken to fulfil the third condition is far more salutary than three hours' sleep obtained by the use of a hypnotic. Moreover, that in many forms of asthenic delirium, whether the asthenia be induced by infection, intoxication, exhaustion, senility, or what not, sleep is more readily induced and maintained by measures directed immediately against the asthenia than against the insomnia. In the selection of a hypnotic the one least depressant to the patient's vitality and least apt to be followed by depression should always be given preference. The motor depressants should never be used in the delirium accompanying the asthenic state, except as the very last resort. In certain forms of sthenic delirium, and especially those in which a sedative effect cannot be produced by the external application of water, drugs which are motor depressants and at the same time hypnotics may be used with the greatest benefit. Of these, the alkaloids of hyoscyamus are the most available.

The second principle is that great care should be exercised in the application of mechanical restraint in all forms of asthenic delirium, lest the encroachment on respiratory capacity lead to pulmonary complications which jeopardize the life of the patient. Whenever possible, physical restraint is very much less dangerous.

Concerning the third principle, that of maintaining the patient's vitality, Collins insists on its importance.

The meeting of the fourth indication, viz., the discovery and removal of the cause of the delirium, is after all the most essential procedure in the treatment of this symptom. To do this the pathological association must be determined, and then our ammunition leveled directly against it, while simultaneously the first three principles enumerated are guiding us in symptomatic therapy.

METHYLENE BLUE IN MALARIAL FEVER.

The Berlin correspondent of the London *Lancet* of February 26, 1898, tells us that Dr. Cardamatis, of Athens, inspired by the researches of Professor Ehrlich of Berlin, and Professor Boinot of Paris, has successfully used methylene blue in the treatment of malarial fever. In his report communicated to the *Deutsche Medicinische Wochenschrift* he publishes 275 cases where the drug was administered. The dose was from ten to twelve grains ("Gran") for adults, eight grains for younger patients, six grains for children, and one or two grains for infants at the breast. In typical intermittent fever the drug is given ten hours before the beginning of the paroxysm; in remittent or continuous fever eight hours before the remission. When both methylene blue and quinine failed a combination of the two drugs proved useful, but the effect was less marked when the methylene blue was associated with arsenic. The

combined treatment was necessary in only thirty of the 275 cases. In quotidian ague, when the patients had become free from fever, after five days' administration, the drug was given for six days. A pause of two days followed, after which it was again given for four days; after a second pause of eight days there was a final administration spread over two days. After twenty-two days a radical cure was obtained in this way. When the attacks appeared again after the fifth day treatment was continued for forty-eight days with several interruptions. In tertian and quartan ague the first stage of the treatment lasted twelve days, and the remedy was given for sixty days with several carefully arranged intervals.

The advantages of methylene blue were especially obvious in those cases where quinine had proved useless or where there was intolerance of it. The drawbacks associated with methylene blue are the staining of the tongue and the lips; a slight amount of cystitis was also sometimes observed, but these inconveniences are very slight in comparison with the radical cure obtained in nearly every case. Immunization seemed to be produced by the treatment, for although the convalescents continued to reside in the malarial district very few of them indeed were subsequently attacked. With the exception of the cystitis already mentioned no toxic symptoms were ever observed. In eighteen instances the fever disappeared after the first day, in thirty-six after the third, in eighty-four after the sixth, in eighty-eight after the tenth, in eighteen after the eleventh, and in thirteen after the twelfth day. In eighteen cases no cure was obtained. In thirty-eight out of the 275 cases a relapse occurred after two months.

THE COLD-BATH TREATMENT OF SCARLET FEVER.

In a recent number of the *Blätter für Klinische Hydrotherapie*, JURGENSEN, of Tübingen, writes on the value of the treatment of scarlet fever, from the moment of its invasion to the end of the disease, by means of cold baths. As soon as the temperature reaches 102½° the patient receives a bath which lasts for about five minutes, the temperature of the bath being about 80° or lower. Children well advanced in years may have even colder baths with advantage. Jürgensen claims, with Leichtenstern, that by this means the pulse is slowed, the temperature is reduced, and that a very favorable influence is exercised upon the general circulatory and nervous system. The baths may be repeated every four or five hours, but seem to be particularly valuable in those cases where the system is depressed by the toxemia of the disease. Where the physician fears that the shock to the patient will be disadvantageous, warm baths may be used, the temperature being as high as 100° to 106°, and, at the same time that active frictions are applied, cold affusions should be made to the head and shoulders.

The following contraindications to this method of treating scarlet fever are named: Feebleness of the heart or existence of appreciable myocarditis, difficult respiration due to stenosis of the air-passages, epistaxis or hemophilia, inflammations of the joints. Where scarlatinal nephritis is to be treated, hot baths at about 100° to 102° or hot packs may be used to advantage to relieve the kidneys.—*Revue de Thérapeutique Médico-Chirurgical*, Feb. 1, 1898.

MASSAGE IN THE INCOERCIBLE VOMITING OF PREGNANCY.

In the *Bulletin Général de Thérapeutique* of December 15, 1897, JEFFROI, while recognizing the fact that a large number of remedial agents have been employed in the treatment of this condition, strongly recommends massage. He states that usually it only requires five or six seances to obtain a complete result, and after two or three rubbings the vomiting ceases. The massage is applied to the region of the stomach and duodenum. Nearly always there will be found when it is begun marked tenderness in this region. He reports a number of cases in which this treatment was followed by very good results.

THE TREATMENT OF ACNE VULGARE AND ACNE ROSACEA.

The local treatment of acne vulgare may be by means of scarification, but care should be exercised in its use lest permanent and severe cicatrices result. After scarification compresses wet with a solution of one-half to one per cent. of lysol may be applied. At night an ointment containing ten per cent. of precipitated sulphur and two per cent. of pure resorcin and salicylic acid may be applied after the part has been washed with green soap. Should this treatment cause

great irritation of the skin, this may be partially removed in the morning by a cooling ointment or cold cream. After some time, when the treatment has, by producing inflammation, substituted desquamation for the ordinary acne process, the part may be dressed with one of the following ointments:

℞ Ichthyol, 5 grains;
Oxide of zinc and starch, 75 grains;
Vaselin, 6 drachms.

Or,

℞ Oxide of zinc, ½ ounce;
Olive oil, ½ ounce.

The following ointments may be applied to the skin in cases of acne rosacea, being thoroughly rubbed in:

℞ Naphthol, 15 grains;
Washed sulphur, 1 drachm;
Vaselin, 1½ drachms.

Or,

℞ Pure resorcin, ½ to 1 drachm;
Oxide of zinc and starch, of each 15 grains;
Vaselin, 2 drachms.

Should the skin be very red and turgescent it may be well to aid total desquamation of the skin in the region treated. Under these circumstances the prescription given for oxide of zinc and sweet oil may be used to allay the inflammation. Sometimes the prescription for ichthyol already named will be useful. In very rebellious cases scarification may be needed, under which circumstances anesthesia may be produced by the use of chloride of ethyl. — *Revue de Thérapeutique Médico-Chirurgical*, Feb. 1, 1898.

THE HYDROTHERAPY OF MEASLES.

In the *Blätter für Klinische Hydrotherapie*, JURGENSEN recently published an article upon the bath treatment, dealing in this case with the disease, measles. As a rule he does not believe that hydrotherapy is necessary, but should the following conditions arise it is useful: Should the patient be stuporous, or if there be marked delirium and convulsions, cold affusions at 60° to 70°, lasting for two minutes, may be applied to the head and neck. If this is insufficient to reduce the temperature, then a bath of 70° to 80°, lasting for five minutes, with colder affusions to the head, may be used. Feebleness of the heart does not seem to be the same contra-indication to the use of cold in measles as it is in scarlet fever. Should there be signs of laryngeal stenosis it may be well to place the child in a hot bath or in a hot pack for from fifteen to twenty minutes. Should the face become very much congested, cold affusions may be applied to the head or an ice-bag may be used. Should the temperature become subnormal, a hot bath may be given accompanied by energetic rubbing. Where there are evidences of catarrhal bronchitis it may be well to apply sudden cold affusions to the chest and to follow these immediately afterwards by the administration of an emetic.

THE NON-OPERATIVE TREATMENT OF ENDOMETRITIS.

The *Journal de Médecine de Paris* of February 6, 1898, gives the following advice under this heading: The vagina and the cavity of the uterus is first thoroughly washed by a 1-to-1000 (!) solution of corrosive sublimate. After this one of the following crayons is introduced:

℞ Powdered iodoform, 2½ drachms;
Gum tragacanth,
Glycerin and water, sufficient quantity to make 10 crayons.

Or, instead, salol or resorcin may take the place of iodoform.

Sometimes the following treatment can be used:

℞ Corrosive sublimate, 7 grains;
Powdered talc, 1 ounce;
Gum tragacanth,
Glycerin and distilled water, a sufficient quantity to make 15 crayons.

These crayons may be introduced into the uterus and kept there by tampons saturated with iodoform or salol, which are placed in the vagina.

[We should regard this treatment with doubt, preferring in all cases curettement or other operative procedure.—ED.]

ON THE TREATMENT OF SOME OF THE MORE COMMON EYE AFFECTIONS.

In the *Edinburgh Medical Journal* for January, 1898, Mr. BERRY gives the following information as to some of the common eye affections:

A condition that one is frequently called upon to treat is hyperemia or inflammation of the lid margin. The inflammation, blepharitis, is met with in very varying degrees of severity, and leads to more or less marked ulceration of the free margin of the lid, as well as sometimes of the contiguous skin. Different cases of blepharitis are often classified according to differences in the local

pathological changes. From the point of view of treatment it seems better to recognize, as far as possible, the main differences in etiology. A sufficiently useful etiological classification might embrace three groups, which, however, can hardly be said to be always absolutely distinct.

One of these groups includes the cases of blepharitis which occur for the most part in delicate children, and are often associated at times with attacks of phlyctenular inflammation of the conjunctiva and cornea. Some reference has already been made to these cases. They are cases of what may be called the strumous form of blepharitis. Another group includes the cases which are more or less evidently connected with a chronic catarrhal condition of the tear sac. The last group again comprises those of herpetic or eczematous blepharitis, as the third variety has sometimes been called. In these there is an absence of the strumous element, and usually, at the same time, of any evidence of autoinfection from local sources. They mostly occur in adults, and are often associated with more general eczema of the skin of the lids.

The worst cases of blepharitis belong to the first two groups. The inflammation in them often goes the length of ulceration, and this ulceration leads to greater or less destruction of the eyelashes. In old-standing cases it is common, indeed, to find a complete or practically complete absence of eyelashes. This gives rise to an ugly, red, blear-eyed appearance, which is very characteristic. Short of this there may be an alteration in the color and character of the lashes, many of those remaining being misdirected, and thus leading sometimes by their inversion to irritation or ulceration of the cornea. The ulcers of the lid margin, as they extend in depth, partially or completely destroy the hair follicles, and then cause these changes in, or the loss of, the eyelashes.

In the treatment of all cases of blepharitis, the first step should be to remove the crusts or scabs which have formed, and to epilate, with the cilia forceps, all the eyelashes which present a distinctly abnormal appearance in their color, their thickness, or the direction of their growth. The subsequent treatment must depend upon the etiology of the local inflammation, as well as to some extent upon the severity of the changes which have been produced. Sometimes, when the ulcers of the lid margin have become to a great extent confluent, a really satisfactory clearing of the soil for local applications can only be got by first cutting all the lashes off with a pair of scissors. This is comparatively seldom necessary, however. Before attempting to remove the scabs, it is best, in the more pronouncedly impetiginous cases, to apply a starch poultice, in order to soften them. They can afterwards be carefully and thoroughly picked off with a piece of quill, without causing much pain. Until this is done, any epilation that may be required should not be begun. Besides saving trouble, owing to many of the diseased lashes coming away with the scabs, it is then easier to see from the little ulcer pits which lashes it is advisable to pull out. When from the raw surface thus exposed there is found to be an exudation in which there is an evident admixture of pus, which is only rarely the case, and only in the strumous variety of blepharitis, it is well to paint the lid margin over once with a five-per-cent. solution of nitrate of silver, dabbing the solution well into the ulcers with the camel's-hair brush. This should be followed up by the use, three or four times daily and for a quarter of an hour or so at a time, of compresses soaked in a one-half-per-cent. solution of the neutral subacetate of lead. After these have been used for a few days, recourse may be had to the yellow oxide ointment. When the blepharitis is associated with phlyctenular conjunctivitis or keratitis, it is best to use the mercurial precipitate, according to the prescription already given. If it exists alone, the following preparation may be used instead:

℞ Hydrargyri oxidi flavi, grs. x;
Vaselini albi, ʒ ss.
This should be well smeared along the lid margin morning and night.

Occasionally from neglect, or owing to some particularly marked delicacy on the part of the patient, often from both combined, and always in young children, the lid margin inflammation is not only ulcerative, but is associated with a great deal of deep infiltration, so that the tissues of the lid, and especially the tarsus, are much swollen and thickened. In such cases the ordinary treatment is of no use. As the eyelash follicles are then irretrievably destroyed, and there is consequently no use attempting to save them, the best treatment is to freely scrape away the ulcerated tissues with a small Volkmann spoon, and then undermine the skin and transplant it over the comparatively healthy raw surface which is left.

The general treatment in the case of the

strumous variety of blepharitis should be on the same lines as that already discussed in connection with phlyctenular keratitis. Dark glasses should be worn outside in summer, and also in winter when there is snow on the ground. The skin should be kept clean by frequent baths, and cod-liver oil or syrup of the iodide of iron given internally.

In a number of cases of less severe blepharitis, which do not rapidly improve by the use of the yellow oxide ointment, efficiently applied after the scabs and crusts and diseased eyelashes have been removed, it becomes advisable to slit up the canaliculi. This should always be done, as already explained, when any regurgitation of mucus or muco-pus can be got by pressure over the tear sac. But whether such regurgitation be found or not, the little operation is indicated wherever a blepharitis exists for a long time on one side alone. In such a case it often happens that the blepharitis rapidly disappears without any further treatment, although it may previously have resisted other therapeutic measures. There is not, however, the same justification for early interference of this kind in bilateral cases. In them it should not be undertaken, unless there should either be definite evidence of a catarrhal state of the mucous membrane of the tear passages, or a decided rebelliousness to the treatment recommended above.

The eczematous variety of blepharitis, besides being practically only met with in adults, never assumes the impetiginous type which characterizes so many cases in strumous children. Hyperemia of the lid border with a scaly crusting, and sometimes a sort of herpetic eruption, are the appearances presented by this form. In the milder degrees the lid margin has a look almost as if it had been dusted over with flour, although the numerous small scales are hardly as white.

The treatment should consist in frequent bathing with warm water, the lid margins being well rubbed with a wet pledget of cotton-wool. A little zinc ointment may also be smeared on in the morning after the bathing. The following ointment may be used:

℞ Zinci oxidi, grs. viij;
Vaselini albi, ʒ ss.

Or, the crusts may first be rubbed off with the cotton-wool soaked in a little spirits and water (about one part of whiskey to three of water), and then the following ointment rubbed in:

℞ Ichthyoli, ♏ ij;
Aquæ destillatæ, f ʒ ss;
Lanolini, ʒ ss.

Attention should be paid to the conditions under which the eyes are used, and sources of irritation, such as dust or smoke or impure air, as far as possible removed. Dark glasses are also sometimes useful. Further, it is always advisable to correct any existing error of refraction, especially for near work. In troublesome cases it is well to recommend an anti-gouty diet. It is especially important to knock off alcohol, especially if, as is often the case, it happens to be more freely indulged in than necessary.

A condition which is often complained of, and generally more on account of its unsightliness than for any great discomfort to which it gives rise, is a sort of blind pimple of the lid margin. Usually there is only one, though occasionally there may be several, elevations of this kind at different parts of the margin. The pimple appears as a uniformly red conical elevation. Its base occupies mostly the portion of the flattened lid margin which is in the neighborhood of its free outer edge. Often there are epithelial squames at other parts, indicating a slight degree of blepharitis, but this association may be quite absent. These pimples occur mostly in adults, and often in cases which present more or less evident arthritic symptoms.

The question of treatment has most often to be considered in the case of ladies, who are often sensitive as to the disfigurement which the condition causes. No doubt there may be some degree of local discomfort as well. The actual disfigurement depends partly upon the size, of course, but mainly on the degree of congestion which the little prominences present. The natural duration of the pimples is variable. They may only last a few weeks, but often remain in much the same state for many months. Usually, however, in the chronic cases, the redness, which at first is marked, tones down to a great extent, so that the adventitious tissue assumes nearly, if not quite, the color of the rest of the lid margin, and consequently becomes much less apparent. On everting the lid there is always found to be a little circumscribed area of hyperemia of the conjunctiva, roughly triangular in shape, with its base directed to the portion of the lid margin on which the pimple has formed. In chronic cases there is always to be seen a yellowish streak coursing down the middle of the hyperemic patch. This is simply a Mei-

bomian duct blocked with secretion which has become more or less calcareous. Even in recent cases it is usual to find a degree of transparentness in the middle of the congested conjunctival area, behind which some whitish secretion in the duct shows itself.

The treatment consists in emptying out this retained secretion. This can be done at first by simply pressing the affected portion of the lid between the two thumb nails, which causes the natural exit at the lid margin to burst open and give escape to a sebaceous-looking secretion. In cases which have lasted for some time it is necessary to incise from the conjunctival surface, making the cut along the yellow streak referred to, and up to the base of the pimple, and then to press out the contents. The pimple itself in either case then quickly disappears. In recent cases it almost immediately loses its hyperemia, and this of itself is always a cause of satisfaction to a patient who has been mainly annoyed by the unsightliness which it has produced. Not infrequently there are found to be other little patches in the lid of the same nature, though rarely as large, but which are not complicated by the protrusion at the margin. These should be treated in the same way, and preferably at the same sitting. An astringent lotion may be used for some time afterwards.

THE TREATMENT OF ARTICULAR RHEUMATISM.

The following formulæ are given in the *Revue de Thérapeutique Médico-Chirurgical* of December 13, 1897: Absolute rest in bed and a diet consisting exclusively of milk, broths and eggs, hot drinks in abundance, and in each liter of liquid thirty grains of the nitrate of potassium. Envelop the affected joints with an ointment, applied after the following liniment has been rubbed in:

℞ Laudanum,
Chloroform,
Olive oil, equal parts.

The ointment should consist of ten per cent. of salicylic acid with lanolin. Internally the salicylate of sodium may be given in the dose of one to two drachms a day. This should be kept up for two days, when it should be slightly decreased. Full doses are, however, necessary. There are several ways of administering it: First, in cachet. This is a method which is not to be recommended, as it is apt to irritate the stomach. The same difficulty exists with solutions of the drug. A useful formula is as follows:

℞ Salicylate of sodium, 3 drachms;
Rum, 1 ounce;
Syrup of orange flowers (bitter),
Distilled water, of each 3 ounces.

A dessertspoonful to a tablespoonful of this at a dose. Sometimes the salicylate of sodium may be given by rectal injection. Thirty grains of it is placed in four ounces of water and given once, twice or three times a day. Before the injection is given the bowels should be well washed out. The contraindications to the use of salicylate of sodium are alcoholism, pregnancy, arteriosclerosis, old valvular cardiac lesions, cerebral rheumatism, and nephritis. In some cases where the salicylate of sodium is contraindicated, salophen may be given in the dose of forty-five to seventy grains in cachets. Antipyrin, while it does not cure the rheumatism, may be used to relieve the pain in doses varying from ten to forty-five grains a day. It may be given in solution in ordinary water or in Vichy, or by means of rectal injection.

A NEW OPERATION FOR THE RADICAL TREATMENT OF CANCER OF THE CERVIX, CONSISTING OF THE REMOVAL OF THE UTERUS AND VAGINA EN MASSE BY THE SUPRAPUBIC METHOD.

WERDER writes in the *American Journal of Obstetrics* for March, 1898, detailing his methods. He thinks that the radical operations as ordinarily performed for the cure of malignant disease of the uterus are, to say the least, unsatisfactory, as is shown by the large percentage of recurrences within a comparatively short period, and by the number of modifications in the technique recently recommended by different operators for the purpose of improving our permanent results. That the cause of failure is largely due partly to our inability to operate in strictly healthy tissue in cancer of the cervix, especially when extensive and involving the greater part of the vaginal portion, and partly to an inoculation of healthy tissue with cancer cells during the course of operation, the author thinks can be demonstrated by the fact that in the large majority of cases the disease returns in the vaginal cicatrix left as the result of a hysterectomy, whether vaginal or abdominal. Such, at least, has been his experience in all the cases in which he was able to observe the subse-

quent course of the disease. In order to obtain better results it is, therefore, essential to do more radical work at the seat of disease, viz., the cervix and vaginal fornices, which are in contact and frequently more or less extensively involved in the disease. It is these latter particularly—*i.e.*, the vaginal fornices—which cannot always be removed to a sufficient extent to insure operating in absolutely healthy tissue by the ordinary vaginal or suprapubic methods of hysterectomy, on account of the proximity of the bladder, rectum, and ureters.

For some time the author has been convinced that the removal of the vagina, or at least its upper portion, with the uterus is the only method which enables us to completely extirpate the diseased parts in cancer of the cervix. It occurred to him that the technical difficulties connected with such an operation could be successfully overcome by opening the abdomen, severing the uterus as in ordinary hysterectomy, and freeing the bladder from it; with this difference, however, that the dissection is extended down along the vagina, separating the anterior wall of that canal from the bladder as far down as we wish to remove the vagina. The recto-vaginal space is then entered, and the posterior vaginal wall is stripped off the rectum as far down as necessary; finally the lateral attachments of the vagina are loosened. The uterus and vagina having thus been entirely freed, that organ could be pushed down into the pelvic outlet, the vagina being inverted by making traction from below until it could be amputated above the prolapsed fundus. All this could be done without touching the diseased cervix with the fingers or allowing it to come in contact with any wound surfaces, thereby absolutely excluding the possibility of inoculating healthy tissue with cancer elements.

The feasibility of the operation briefly described above having been tested and confirmed in the post-mortem room, an opportunity for its practical execution presented itself on the living subject January 5 of this year.

The patient, Mrs. D., aged forty-five, mother of four children, the youngest of whom is nineteen years old, was referred to the author by Dr. C. M. Cameron, who had made a diagnosis of cancer of the cervix in February, 1897, almost a year ago, and advised operation, which was, however, refused until hemorrhage and a very fetid discharge compelled her to get relief. When she came under his notice she was anemic and weak. The vaginal portion of the cervix was the seat of a cauliflower growth completely filling up the upper portion of the vagina and invading the anterior vaginal pouch. The uterus, however, was still movable, and parametria free. Radical operation seemed, therefore, still indicated and advisable. It would have been exceedingly difficult to keep at a safe distance from the diseased area in the vagina, especially at the anterior vaginal wall, in the usual vaginal or suprapubic hysterectomy, and the case seemed especially suited for the operation under consideration.

The patient having been anesthetized, the whole vaginal portion was very easily removed by a sharp spoon curette, as it was completely broken down by the disease. The remaining bleeding surface was seared over with the thermocautery. The patient was then prepared for laparotomy. Both ovaries and tubes were found adherent, and the left tube distended with about an ounce of creamy pus. After the ovarian arteries were secured the bladder was separated, not only from the uterus, but also from the broad ligaments on either side as far as possible, so as to get the ureters out of the way. This opened up both broad ligaments, and the uterine arteries could be easily traced over to near the pelvic bones, where they were tied without difficulty. An assistant having inserted two fingers into the vagina as guides, the dissection between bladder and vagina was then carried down to within about an inch of the vulva. The sacro-uterine ligaments were then divided with scissors, the rectum separated from Douglas' pouch, and, with two fingers, the dissection extended down to the lower half of the vagina. The lateral walls of the vagina were then freed from their attachments. The uterus and vagina were now only held by the base of the broad ligaments, which were very firmly bound to the vaginal fornices, the separation of which formed the only really difficult part of the operation. This having been accomplished and the broad ligaments completely divided, the finger could be passed all around the uterus and vagina, and at no place had the vaginal tube been opened. The loss of blood during the whole operation was insignificant. The uterus and vagina were then pushed down into the pelvic outlet, and the bladder with its peritoneal flap drawn across the pelvic cavity and stitched over the rectum to the posterior wall of the pelvis, thereby completely shutting off the pelvis from the general peritoneal

cavity and covering up all raw surfaces with the peritoneum. The abdomen was closed in the usual manner.

The operation having been done in the Trendelenburg posture, the patient was now placed in the ordinary lithotomy position. The uterus, which was protruding at the vulva, was seized with vulsella forceps and drawn completely out of the vulvar orifice with the inverted vagina. With a finger in the rectum and a sound in the bladder, as safeguards against injuring those organs, the inverted vagina was amputated with the thermocautery.

An inspection of the cavity showed a large raw cavity lined in front and above by the bladder, behind by the rectum, about four inches of which was completely exposed, and below by a very short vagina. The cavity was lightly packed with gauze and the patient returned to bed. Duration of operation, two hours.

The specimen consisted of the uterus with the right ovary and tube attached, the left one, filled with pus, having been removed earlier in the operation, to prevent soiling the field of operation. To the cervix was attached at least two inches of the vagina. The patient was suffering from considerable shock, from which she recovered rather slowly. After the third day, however, her condition became entirely normal, and her convalescence was interrupted only by a slight parotitis, which subsided in a few days. Examination of the pelvis on the tenth day showed a very small cavity above the remaining vagina, observed with healthy granulations, in which the bladder and rectum were no longer recognizable.

The operative technique the author found much easier than he had anticipated, and not more difficult than a total abdominal hysterectomy. After a little experience he thinks it should not consume more time than the latter operation. He would suggest the use of rubber gloves for the preliminary curettement, to keep the hands aseptic and to avoid contact with cancerous tissue, thereby not only preventing any danger of septic contamination, but also excluding with absolute certainty the possibility of inoculation.

The operation seems an ideal one for the treatment of cancer of the cervix, because we can do a more radical operation than by any other method, and we can remove that part which, on account of its proximity and anatomical relation to the original seat of disease, is earliest invaded, but by our present methods most difficult to reach. It should give more permanent cures, even in advanced forms, because we can not only extirpate the vagina or as much thereof as may be deemed necessary, but we can excise the greater part of the broad ligaments if we take the precaution to carefully push aside the ureters with the bladder. It enables us also to get at the iliac glands without much additional trouble or difficulty, should we regard their removal as necessary.

OPERATION FOR THE RESTORATION OF THE URETHRA AND FOR THE CLOSURE OF A VESICO-VAGINAL FISTULA INVOLVING THE NECK OF THE BLADDER.

C. P. NOBLE tells us in the *American Journal of Obstetrics* for March, 1898, that operations for the closure of vesico-vaginal fistulæ have been so perfected that the closure of such fistulæ, at one time the despair of surgeons, can now be accomplished with the certainty of success in almost all cases, even those involving the most extensive destruction of the base of the bladder. Fistulæ involving the neck of the bladder are among the most difficult to close, and cases complicated by destruction of the urethra have long taxed the ingenuity of surgeons. Fortunately, such cases are rare, and but few gynecologists, even those of extensive experience, have met with them. Probably Dr. Emmet has had a larger experience in dealing with such cases than any other operator. He states that he has succeeded in restoring the whole urethra by plastic surgery in six or seven cases, and only partially so in others. Emmet portrays most vividly the difficulties of these operations, and states that he is less inclined than formerly to operate upon them because of the slim chances of success or permanent benefit from such procedures. Olshausen reports three cases in which he has performed the operation of restoring the urethra. In two of the cases he was successful, but the third was a failure. The author has not had time to make a careful search through medical literature for all the operations reported, but there is no doubt that the number is small. The following case has come under his own observation, and he reports it as an encouragement to others to attempt the cure of similar injuries:

Mrs. S., aged fifty-two, white, American, the mother of three children, had had good health until 1896. Nothing in her history

bears upon the subject of this report. At the age of forty-nine she noticed, especially when tired, a throbbing, referred to the rectum. On account of the continuance of this symptom, in March, 1896, she consulted a physician in Reading, Pa., who stated that an immediate operation was required to prevent invalidism. The operation was performed and was followed by some leakage of urine, which became profuse after the removal of the stitches on the eighteenth day. The primary operation was said to be for the removal of a "blue spot" on the anterior vaginal wall. In the attempt to repair the opening in the bladder the doctor operated seven times. Four of the operations were performed without general anesthesia. From the patient's statement it is apparent that various suture materials were employed in the different operations, including harelip pins; after some of them a drainage catheter was used, and after others it was not employed. All of the operations failed. At this time a mass projected through the fistulous opening, which she was told was a polyp, and it was proposed to remove this. She then consulted her family physician, who told her that the supposed polyp was the prolapsed wall of the bladder. This resulted in the discharge of the doctor who had made the fistula, and, upon the advice of her family physician, a well known gynecologist was called in, who operated upon her twice in Reading and twice in a hospital in this city. Union was not secured.

Mrs. S. consulted the author November 16, 1897, and on examination he found that the entire inferior wall of the urethra was gone and that a fistula existed involving the neck of the bladder. The situation of the urethra was marked by a strip of mucous membrane continuous above with the vesical wall. The opening into the bladder was large enough to admit the index-finger. The edges of the fistula were cicatricial, and upon each side of the urethra extensive cicatrices were present, probably the result of incisions made at the various operations to relieve tension on the sutures. After some of the operations there must have been considerable destruction of tissue, as a large amount of cicatricial tissue was present.

The mental condition of the patient was very bad, being due, doubtless, to the failure of the eleven operations to effect a cure and to the constant annoyance of the discharge of urine. November 20 the author operated upon her at the Kensington Hospital for Women. As a preliminary he procured a Sims sigmoid metallic catheter, whose diameter was one-third that of the usual catheter. The operation was performed as follows:

An incision was made along the edge of what corresponded to the original mucous membrane of the urethra, from the meatus to the bladder. External to this line of incision a raw surface was made upon each side of sufficient breadth to make a firm urethral wall. The edges of the fistula into the bladder were then denuded, an effort being made in the denudation to secure as small a neck to the bladder as possible. Deep incisions were then made, parallel to the long axis of the vagina, upon each side of the proposed urethra, to secure flaps out of which to form the new urethra. On the left side it was necessary to detach the soft parts entirely from the pubic bone in order to overcome tension.

The sutures were introduced in the following manner: The small catheter was introduced and held in position; over this was sutured, with a running suture of No. 1 cumol catgut, the mucous membrane of the bladder and that of the new urethra; interrupted silver-wire sutures were then introduced to close the opening into the bladder and to form a new urethra. An effort was made to pass the sutures at the neck of the bladder in such a way as to catch, if possible, the muscular fibers which form the sphincter vesicæ. The silver-wire sutures were then twisted and tightened, closing the fistula in the bladder and building up a new urethral wall. To reenforce this line of sutures, and to secure an even better approximation, a silkworm-gut suture was placed between each of the silver-wire sutures. Sutures were then passed in the direction of the axis of the vagina to close in part the incisions made at each side of the restored urethra, and more especially, by approximating the ends of these incisions, to still further guard against tension on the restored urethra. The deep incision on the left side was then packed with gauze. The operation lasted about one hour and a quarter.

The next problem was to secure healing, and the author determined to leave the catheter *in situ* until the newly formed urethra had firmly united. After two days the catheter became blocked by a deposit of urinary salts, after which time the bladder was washed out daily with boracic acid solution to overcome this difficulty. The cathe-

ter remained *in situ* until the twelfth day, after which it was removed daily for cleansing. The line of union healed by first intention throughout, although the tissue which made up the left side of the restored urethra was cicatricial in character and its vaginal aspect was bare of mucous membrane. Three weeks after the operation the deep incisions had filled up by granulation and only a small area remained for cicatrization.

The patient is able to retain her urine for from three to five hours, after which time she has not perfect control over the bladder and is apt to discharge a small quantity of urine if the bladder is not promptly evacuated.

The author would like especially to call attention to two points in the technique of the operation, as he believes a successful result was dependent upon them. The first was the use of a very small catheter, which was left in position until primary union had been secured. He felt, and still feels, certain that an attempt to pass a catheter through a somewhat distorted canal daily or more frequently would result in the perforation of the canal and failure of the operation. The second point was the method used in suturing. By first restoring the mucous lining of the canal with a continuous catgut suture, it was possible to insure a narrow urethra of uniform diameter, and in the subsequent restoration of the wall of the urethra it was possible to disregard the urethral canal and to consider merely the building-up of a firm urethral wall. It was possible also to study the problem of tension more carefully. It was found necessary to make a very extensive detachment of the soft parts from the pubic arch in order to secure a flap of tissue without tension.

THE ASCH OPERATION FOR DEVIATIONS OF THE CARTILAGINOUS NASAL SEPTUM, WITH A REPORT OF TWO HUNDRED OPERATIONS.

MAYER writes in the *Medical Record* of February 5, 1898, on this topic. He begins by telling us that deviations of the cartilaginous septum may be of recent origin, or they may have existed for a long time. If of the former class, they are invariably due to some form of violence, while in the latter they may have other causes due to some faulty development, being practically congenital in their origin.

When they are of recent origin the surgeon is most apt to be consulted. If of long standing they are generally discovered by rhinologists in their search for the cause of the train of symptoms complained of and which they occasion. These symptoms are mainly permanent obstruction to respiration on one side, mouth breathing, dryness of or excessive secretion in the throat, constant rasping, fitful sleep, nasal voice, epistaxis, aural diseases, diminished hearing, persistent headaches, and many reflex disturbances. It frequently happens that the patient is not aware of the nature of the diseased state which causes his complaints.

Deviation of the cartilaginous septum may be defined to be a deflection from the normal straight line to one side, filling the nasal cavity more or less completely, accompanied by a corresponding depression on the side opposite. For simplicity of description the deflected or obstructed side is called the convexity, the other the concavity. It offers no difficulties in the way of diagnosis, and can be ascertained to exist by either or all of the following methods: Obstructing the nostril on the concave side and requesting the patient to blow — either no air or a very thin stream is felt upon the hand. Reversing the procedure, a full, free current is obtained. By dilating the nostril with a speculum, or even raising it with the finger, the deviated portion is readily seen, the convex side filling the nasal space. Touching with a probe reveals its firmness. Cocainizing produces no retraction, and usually the probe, having passed beyond the obstruction, readily enters the nasopharynx.

Perforations occur in about two per cent. of the operated cases, are usually about the size of a pin's head, and are caused by the curling up and sloughing of the edge of one of the segments. In no single case was there any alarming hemorrhage, either at the time of operation or subsequently. No septic conditions resulted, no disagreeable after-effects; no disturbance traceable to the operation occurred, nor was there at any time any danger to life. These results are the more remarkable in that these operations were performed upon dispensary patients, whose physical conditions are rarely of the best.

There are two separators, one with a blunt edge and the other sharp, to break up any adhesions existing between the septum and the turbinate on the affected side, as also to destroy any posterior obstructions. The scis-

sors are of two sizes. These are powerful instruments, curving outward from the point of crossing and meeting again in front. One blade is blunt, while the other is sharp with a triangular blade, the apex of which is at the tip. The other scissors are made with the blades bent at right angles, and are occasionally necessary for those deviations that lie low down on the floor of the nose.

There are two compressing forceps, one having a long and the other a short beak.

Hollow tubes of vulcanite are made with a slight curve on the under surface, in accordance with the normal curve at the entrance of the vestibule of the nose. These tubes have perforations to prevent their slipping out when inserted. They are of different sizes and shapes. Those known as the Asch tubes are of five sizes, somewhat oval in shape, and those known as the Mayer tubes are of six sizes, more oval, and considerably flatter on the sides. These vulcanite tubes are so prepared that they retain their shape when subjected to the heat of a sterilizer.

The operation is best performed under complete anesthesia. Cocaine does not appear to be of value here, it being necessary that the patient be recumbent, and in the efforts to dislodge the blood flowing into the pharynx the operator is seriously interfered with. The nose is sprayed out immediately preceding the operation, for which purpose an alkaline antiseptic, like the Dobell solution, is used. The usual preparations for anesthesia are made, ether or chloroform being the anesthetic used. All instruments are carefully sterilized. The use of an antiseptic spray and the sterilization of instruments for an operation when the air cannot be excluded either before or after operation may be explained by stating that we know that by such care we are surely not adding any infection by our operative procedure. Complete anesthesia is required. The cone being removed, it never becomes necessary to have recourse to it again, as the operation is rapidly performed and completed before consciousness is regained.

The head is well drawn backward, in order that blood may not enter the larynx, the table being so placed that either the direct or artificial light may be used.

The blunt separator is now introduced sideways on the deviated side, in order that any adhesions existing between the septum and its adjacent mucous membrane may be broken up, enabling us at the same time to ascertain the presence of bony obstructions posteriorly. Should these latter exist or the adhesions be non-yielding, the separator with sharp edges is required; this, however, is rarely necessary. There may be some hemorrhage after the adhesions are broken up, but it is readily checked by an iced spray, or by pressure of cotton applicators. The open scissors are now introduced parallel to the floor of the nose, the blade in the concavity, the blunt edge over the point of greatest convexity. They are then firmly closed, the blade cutting through the cartilage into the opposite side with a distinct snap. The scissors are then opened and completely withdrawn. They are immediately reintroduced, the direction of the instrument being upward this time, pointing to the frontal bone, the blade being in the cavity and crossing the line of the first incision at as nearly a right angle as possible, and at its center. In this way the incisions will intersect each other. The scissors are now firmly closed and the second incision made, after which the scissors are opened and withdrawn.

We now have four segments as a result of this crucial incision. The finger is then introduced in the deviated side and the segments are forcibly pushed into the concavity, effectually breaking them at their base.

The powerful blunt forceps is now introduced, one blade in each nostril, and firmly closed, thus straightening the septum and forcing the broken segments to override each other in the concavity. The compression aids also in controlling hemorrhage, and the parts are firmly held in apposition. An iced antiseptic solution is sprayed in both nostrils, the forceps being withdrawn. The sterilized tubes are then introduced in the nose, a snugly fitting one on the stenosed side and a smaller one in the opposite nostril, thus causing equable pressure, their presence being usually all-sufficient to control hemorrhage. The operation is now completed. The amount of blood lost varies with each individual, but is invariably promptly checked when the pressure is applied.

The patient is placed in bed, cold antiseptic sprays are used half-hourly, and iced cloths are applied externally.

Twenty-four hours after operation the tube in the formerly concave side is withdrawn and not replaced. The antiseptic spray is used once every hour or two and the compresses are continued. Twenty-four hours later the tube on the stenosed side is removed and

thoroughly cleansed. The nose is freely sprayed and cleansed with cotton probes, cocaine being used if sensitive. The same tube is reinserted, unless too large for comfort, when a smaller one is used, the rule being to use a tube large enough to be introduced without force, and yet to fill the cavity, no part of it protruding from the nostril. On this day patients are permitted to arise from the bed and assume other than a recumbent posture, the compresses being discontinued. On the third day the tube is again removed, cleansed, and reinserted, and the patient allowed to go home. For the next three or four days the patient presents himself daily for the removal, cleansing, and reinserting of the tube. At each time of removal the nose is thoroughly cleansed and freed from secretions and clots. Within the first week the patient has learned to extract and reintroduce the tube himself, in the presence of the surgeon, and thereafter performs it once or twice daily at home. The directions are given to remove the tube, spray out the nose, or insufflate warm salt water to which an alkaline antiseptic is added, and then to reintroduce the cleansed tube. The extraction and reinsertion of the tube are quite painless after the first week, and it is remarkable how easily the youngest patient becomes accustomed to it. The patient is now seen once or twice a week for the next four weeks, at the end of which time—five weeks from the day of operation—the tube is finally withdrawn for all time.

The mass of bent cartilage has disappeared, the septum has become straightened and remains so, and very often the external deformity no longer exists.

Sometimes during the five weeks that the tube is in it may appear that the septum is bulging greatly on the stenosed side, but it is well to leave it quite alone, as the constant pressure reduces it finally, for there seems to be a resorptive process going on.

It occasionally happens that the lower segment remains thickened after the five weeks have elapsed, and presents the appearance of a spur or enchondrosis. This is treated as such and removed by the electro-trephine or galvano-cautery. The latter has worked splendidly in the author's hands, especially in nervous individuals and children. The parts are cocainized and then cauterized with a platinum knife. There is no bleeding and the patient is not aware of any operative procedure. A light packing of iodoform or sublimate gauze is introduced daily for the next few days after cauterization.

During the five weeks that the tube is in place, excepting the first three days, the patient resumes his usual vocation—children go to school, and adults find no interference in their work.

The segments which were pushed into the concavity, thus destroying the resiliency of the cartilage, overlap each other, become firmly adherent, and in a short time there is no evidence of any unusual condition whatever.

The advantages of the tubes can hardly be overestimated, establishing comfort at once by allowing air to pass through, and acting as splints to keep the septum straight; the readiness with which they are removed and reinserted making them infinitely superior to the original method employed of packing with absorbent cotton about a tin splint.

A CASE OF RESTORATION OF THE FEMALE URETHRA AND CLOSURE OF THE BLADDER, AFTER EXTENSIVE LACERATION.

In the following case, reported by RICHARDSON in the *Boston Medical and Surgical Journal* of March 3, 1898, Thiersch's principle, used in restoring the urethra in cases of epi- and hypo-spadias in the male, was successfully employed. This principle is applied to the female urethra and bladder, and consists in the use of extensive flaps superimposed in such a manner that the internal surface of the urethra and bladder is supplied by vaginal mucous membrane; at the same time the denuded vaginal surface is restored by shifting a flap sufficiently large to cover it.

The patient, Mrs. M., aged twenty-six, had had in May, 1897, a very difficult labor. The attending physician found a deformity of the bladder and an exaggerated hymen. There had never been any penetration. With the patient on the table in the dorsal position, no opening in the hymen could be found. The child was delivered with difficulty and with the use of instruments.

After confinement there was inability to control the bladder. On examination the author found an entire absence of the urethra. There was in its place an irregular line of everted mucous membrane extending a half inch back into the base of the bladder.

A flap was first made to the patient's right of the fissure and corresponding to it in

length. The base of this flap was the line of everted mucous membrane. Turned toward the left, this flap presented its mucous surface upward, and was destined to be the floor of the urethra. The second flap, on the patient's left, was a little longer than the first, and began at the left edge of the everted urethra. This flap had its base about half an inch to the left of the urethra. A catheter was next placed in the urethra, and over it the first flap was spread. This flap was fastened to the denuded surface of the second flap by four silk sutures. The catheter was covered in by vaginal mucous membrane. The second flap was then brought over the first and to the right, where it was fastened by numerous fine silk stitches.

It will be seen that mucous surface was brought to mucous surface, and raw surface to raw surface. Immediate union resulted without leakage. The patient not only had a tight bladder, but she could control it. Since operation there has been no loss of control, but micturition is frequent, especially when she is erect.

This method of closing the fistula presents a double chance for success; for if the mucous approximation is imperfect, as it is likely to be from the impossibility of using sutures, the denuded surfaces, opposed to each other over comparatively broad areas, can be most closely approximated and accurately sutured.

The author has used the method very successfully in restoring the male urethra. The difficulties in applying it to the female are somewhat greater, for in addition to the restoration of the canal the power of controlling the bladder through the sphincter vesicæ is essential. In this case the functions of this muscle were completely restored.

THE MEDICAL AND SURGICAL TREATMENT OF HARELIP.

MUMFORD reminds us in the *Boston Medical and Surgical Journal* of March 3, 1898, that no two cases of harelip are alike. They vary as much as do the faces which they deform; and so, from the simple notch in the border to the double harelip with complete cleft palate, each case must be treated on its own merits. And yet they have not been so treated; nor have the operators, in many cases, seemed to appreciate the importance to the individual of a natural and sightly mouth. As to the child's parents, they are easily satisfied and but too well pleased to have a hideous cavity bridged over in any fashion. With all these varieties of deformity, however, there are two main divisions for surgical purposes: those lips which are backed by a sound jaw, and those which are continuous with the nostril and a palatal cleft. In the former class the mortality is *nil*, so far as the lip is concerned, whether treated or not. In the second class the mortality is high when untreated—by some writers placed as high as thirty per cent.; when treated the mortality ranges from two to fifteen per cent., according to Fritsche. These deaths are ascribed in all cases to malnutrition, hemorrhage, or bronchitis. In the author's opinion, by very far the most important factor is malnutrition. We hear of harelip babies, vigorous, puny, well nourished, and rachitic; and the appropriate time of treatment for each. As a matter of fact, most of these babies are well enough at birth, and their subsequent condition depends largely upon the care and intelligence used in their feeding. If this care be used, the average infant can be brought comfortably up to the sixth or eighth week—the proper time for a harelip operation. Operations done earlier must be hurried and ineffectual for cosmetic purposes; if done later, except in the simple cases, the advantages of an early molding of the nose and lateral pressure upon a cleft upper jaw are in a measure lost.

This highly important preparatory feeding of the patient is in itself an art, and if outside the experience of the surgeon, should be entrusted to some one skilled in infant feeding. In the author's experience its successful prosecution influences very largely the result of the subsequent operation, and its effects are felt even up to the period of dentition.

Ordinarily there is no difficulty in giving the modified milk mixtures prepared in the laboratories for infant feeding. These mixtures with an alkalinity of five to six per cent. answer all practical purposes. When milk laboratories are not accessible, home modification may be done.

In administering the milk there are a few practical hints which should be borne in mind. The food is best fed from a spoon; the various shields and patent nipples are needless and troublesome. The child should be placed on the bed in a half-reclining position during feeding, because when prone the milk is more likely to run up into the nares. If there is a cleft palate, the most scrupulous care must be observed to keep clean the mouth and nares; for this a cotton

stick dipped in a weak boric acid or borax and water solution is best. Plenty of clear water to drink should be given between feedings, as the mouth necessarily is very dry, and by the use of the water a proper action of the bowels is maintained. Stimulants should be given if there is pallor or a flabby skin—one or more drops of brandy with each feeding. The brandy should be increased for two days before operation, and on the day of the operation, in any case, a goodly measure should be allowed.

Most authorities are now agreed that chloroform is the best anesthetic for the operation, on account of its non-irritating action on the lungs. This may be so; but in some considerable experience with ether the author has seen no cause to complain of it, and he sees to it that it is properly given. He likes its stimulating effect.

As to the time for the operation itself, he makes one exception to the rule he lays down. In simple notched lips not extending to the nostril, he thinks it well to wait until the child is three or four years old, as he can then be trusted to manage the wound carefully, and a most exact plastic operation can be done with the more mature tissues.

In these cases, and indeed in all others, so far as ultimate beauty of result is concerned, the greatest attention must be paid to the finish of the vermilion border. For this purpose the Nelaton or Malgaigne operations are the only ones to be used. The old-fashioned slashing cuts with scissors, and the quick sewing up, are bad surgery, and should never be used except when desperate hurry is demanded.

There is a large variety of other flap operations described by authors—Hagedorn's, Mirault-Langenbeck's, Simon's, Giralde's, and many more. They are all designed on the dove-tail principle, their object being to fill in the cavity and provide a smooth, red-lip border. In practise the author does not think them applicable to infant lips. They sometimes answer admirably for older children and adults, but not for restless, crying babies. At best, they leave an irregular scar instead of a straight line, and there not infrequently results an ugly notch in the lip border.

It is not necessary here to go into the treatment of the intermaxillary bone. Suffice it to say that it can usually be forced into position and utilized. In very rare cases it must be sacrificed.

It has been claimed by some writers that double harelip operations should be postponed until the second or third year of life, but the author prefers to do them within the first two months, if possible, for he is convinced that the same advantages apply to the early operations in these cases as to those of single harelip. In all operations, except for a simple notch, the soft parts about the alveolar processes and nares should be dissected free from the upper jaw with blunt-pointed scissors. By clinging closely to the bone, no hemorrhage will result. When the flaps are being cut the coronary arteries may be controlled easily by an assistant's fingers. Scissors should not be used in cutting the flaps. They are inaccurate, sometimes bruise the tissues, and do not leave so clean and broad a cut surface. A narrow-bladed knife is best.

The old-fashioned harelip pins have gone out of use, and very properly. Even when removed on the third day—the old rule—they leave a scar; and the third day is too early for the removal of deep sutures. In all operations, for both double and single harelip, one shotted stitch of silver wire is sufficient to anchor the parts. It is inserted in the fold behind the alæ, lies in that natural furrow, takes all the strain off from the severed deep parts, holds in place the intermaxillary bone, and leaves no perceptible scar. When this stitch has been placed and the parts approximately brought into position, the question of passing the remaining stitches is one simply of time and patience. In all extensive operations, and always in the case of babies, the author has adopted the method of J. C. Warren. Working with a stout silk suture, threaded with a needle at each end, the stitch is entered close under the skin, in the freshened lip border, is passed deeply through the underlying soft parts and buccal mucous membrane, and tied strongly to its fellow inside the mouth. Three or four of these heavy stitches suffice to hold the parts firmly in excellent apposition; when tied, the ends should be cut long. The slight gaping in the skin flaps of the external wound is closed with a few very fine intestinal sutures threaded in small embroidery needles, and are passed as closely as possible to the cut edges, the greatest care being taken not to draw them tight enough to invert the skin. The fine superficial sutures must be removed on the third day, and it will be found that no perceptible stitch scar results. The deep stitches are removed from the inside of the mouth on the fifth or sixth

day, and the wire bridge on the seventh or eighth day.

By no means the least part of the operation is the application of a proper sustaining strap from cheek to cheek. The old-fashioned adhesive plaster is a wretched device, and should never be used; it is unclean, sweats the parts, and checks any discharges which may collect. The familiar *crêpe-lisse* "butterfly" is the best support. It is light, clean, sightly, and does not check discharges. Before applying it, it is well to paint the wound inside and outside the mouth with compound tincture of benzoin, to lay a soft absorbent pad across the external wound, and then firmly to secure the "butterfly" with flexible collodion.

Silkworm-gut is sometimes used for sutures. It is applicable only when tied outside the lip. When so used it always leaves a scar.

For older children and adults, the author has had most excellent and satisfactory results with buried catgut. By its use only can an approach to an aseptic operation be made. The firm resisting tissues of an adult offer an excellent hold for the buried stitch, and if there remains a slight gaping of the skin it can be closed with the fine intestinal sutures.

An absolutely aseptic programme can never be carried out in any harelip operation, but some attempt should always be made to render the field approximately sterile. The constant use of boric acid washes both before and after operation should be maintained. At the time of the operation the upper lip should be thoroughly wiped over, inside and out, with alcohol, which in its turn is to be washed off with water.

During convalescence, especially after the removal of the stitches, some spreading of the upper part of the wound should not discourage the surgeon. As a rule, if the vermilion border holds, the open cleft above will heal, by the second intention, in two or three weeks. There is often a very anxious time about the end of the first week, but the holding of the border is a sure sign that all will yet go well.

No one feature in the whole treatment of harelip is of more importance than that of the feeding of young infants during convalescence from the operation. As an immediate result of the operation there is almost always a considerable gastro-intestinal upset. This is in part due to the anesthetic and in part to shock, but by far the most important factor is the blood which has been swallowed. No matter what the form of operation or the position in which the child is held, a very considerable amount of blood finds its way into the stomach. If this is vomited, so much the better; but usually it remains and makes trouble. There then follow several days of diarrhea, undigested stools, pain, colic, sometimes loss of appetite, and occasionally vomiting. These symptoms may persist many days and do not infrequently most seriously threaten life. More often, however, they merely debilitate the patient, and seriously delay the healing of the wound. He has seen cases in which a total lack of success in closing the lip was obviously due to a low vitality in the wound through malnutrition in an infant hitherto perfectly healthy and strong.

Of the very greatest importance, therefore, is proper care during convalescence.

The ordinary rules for the treatment of an acute mycotic diarrhea are here applicable. On the evening after the operation a brisk purge should be given—castor oil or calomel; and the child should be put on a weak cream mixture. Sometimes even this is not borne, and a thin barley-water mixture or weak, strained chicken tea should be substituted for it. Meanwhile liberal doses of brandy should be given, and if diarrhea persists, bismuth subgallate, in three-grain doses or more, should follow each feeding. Gradually the diet may be strengthened as convalescence progresses, until the normal mixtures have been reached. At the same time plenty of water to drink should be given—a precaution most often neglected by uninstructed nurses.

A *résumé* of the important points in the treatment of harelip, therefore, will include the following considerations:

1. Harelip babies are not necessarily feeble at birth, and by proper feeding can be kept up to the normal standard.
2. Keep the field clean with aseptic washes before the operation.
3. Operate in the sixth to the eighth week.
4. Do not slash with scissors, but cut and trim carefully with a knife.
5. Free the upper lip thoroughly from the jaw.
6. Anchor the nares with shotted wire.
7. Use no pins or heavy outside sutures.
8. Use *crêpe-lisse*, not surgeon's plaster.
9. Leave the heavy inside stitches for six days.

10. After operation give especial attention to the care of the bowels and to proper feeding, as on this very often hangs the whole success of the operation.

FRACTURES OF THE SKULL.

POPE in the *International Journal of Surgery* for April, 1898, points out that fractures of the skull are not uncommon accidents, and present for consideration: (1) Trauma in its various modes of action, producing fractures of various kinds and degree; (2) local sequelæ such as hemorrhage, exudation, and inflammation; and (3) post-traumatic nervous sequelæ.

Complicated and compound fractures of the skull present danger in two directions: (1) danger that arises from direct injury to the brain and its membranes, and (2) danger of infection of the wound from within or without.

Trauma acting upon the skull usually affects the cranium in two general ways, with variations: (1) Local depressed fractures occupying a reasonably small area. Those fractures are, as a rule, not compound, and become so when they are produced by some sharp instrument. (2) Extensive fractures of the vault or base that are produced by trauma, so directed as to bring about a bursting effect, and in their results we find widespread injury to the brain and membranes.

Danger from serious fractures of the cranium, be they simple or compound, lies not in the fracture itself, but in the injury to the nerve elements or their destruction by subsequent infection or in the production of subsequent neural trouble, such as focal epilepsy. One of the latest works upon surgery, and another upon neurology, distinctly advise, if moderate symptoms of cerebral trouble develop, or if the cerebral symptoms are subsiding, or if they are known to be present, the treatment should be "expectant" (?), and interference by trephining should never be resorted to until the development of the later cerebral symptoms. Compound fractures, as a general thing, are opened and cleaned, trephining not often resorted to, especially in fractures of the base where expectant treatment is carried out; and the author's experience, limited though it be, and considered largely from the neurological standpoint, is against delay in operative interference. Trephining under aseptic precautions is in no sense a dangerous operation, and we can feel safe in desperate cases that the relief in intracranial pressure will help the patient. Summing up shortly his experience on the subject, he says:

1. Operate in all cases of fracture of the skull, basilar or compound, and preferably in simple fractures.

2. Expectant treatment, in his opinion, is dangerous, permitting injury to the nerve structures.

3. Danger does not exist in fracture *per se*, but in subsequent injury to the nerve elements and tissues.

4. Failure to trephine and immediately remove the existing pressure, depression, hemorrhage, inflammation, or septic infection may result in the development of focal epilepsy and other cerebral diseases.

5. Little or no danger results from the operation.

6. These rules are doubly applicable to fractures of the base, owing to the danger to vital structures lying there.

THE SURGICAL TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

BRYSON DELAVAN, of New York, writes in the *Journal of the American Medical Association* of March 12, 1898, on this subject. He thinks that while operations for the cure of malignant disease of the larynx have generally resulted in shortening rather than lengthening the lives of patients so operated upon, the experience of the past few years in certain parts of the world has been somewhat encouraging. Indications are beginning to appear which suggest that for this class of patients there exists a not entirely unpromising future.

Within the past two years several papers have been published in which the proportion of successful operations has been unusually large, and while the actual number of patients operated upon has been too small to establish any positive conclusions, and the dates of most of the operations have been too recent to admit of a complete study of the cases themselves, there can be no question that the work recorded in them is, on the whole, worthy of careful consideration. The varieties of operation which have lately challenged attention by reason of the improvements which they have offered may be divided into three groups: (1) thyrotomy, with or without partial laryngectomy; (2) complete laryngectomy by the method adopted in Solis-Cohen's case; (3) complete laryngectomy in cases of extensive laryngeal

disease with glandular involvement. Examples of all three are beginning to multiply, to such an extent that it will not be long before we shall have a collection of details sufficient to afford a fairly positive knowledge of their real value, together with a fund of technical knowledge relating to the subject which cannot fail to be of material aid for future guidance.

1. Every malignant growth of the larynx of intrinsic origin which can be dealt with should be treated by an operation in the absence of a decided indication to the contrary, and the operation should be performed with the least possible delay.

2. Every tumor of the larynx suspected to be malignant, of intrinsic origin, of limited extent, and apparently within reach of free removal, justifies an exploratory thyrotomy in a suitable patient, in the absence of infiltration of the surrounding structures and of affection of the lymphatic glands.

The method of operating pursued by Butlin and Semon has been described in their published writings. It applies distinctly to cases in which the disease is absolutely confined to the interior of the larynx. Preliminary tracheotomy is done with the insertion of the tampon cannula and its careful adjustment. The anterior part of the thyroid cartilage is laid bare with scalpel and raspatory; it is opened exactly in the median line, and the two sides of the larynx are held apart, preferably with two strands of strong silk inserted through the anterior parts of the lateral wings of the thyroid. After the latter has been split open, undue violence in holding the halves apart must be strictly avoided. At this stage it will generally be necessary to protect the parts from mucus and saliva by packing the lower part of the pharynx with a large aseptic sponge secured by a string and passed through the laryngeal wound upward. There are two recommendations upon which Semon lays special stress: (1) The surgeon should be provided with a forehead reflector and a good light, and as has already been suggested by the writer for deep operations in the pharynx, he should if possible have at hand a small two- to four-candle power electric lamp, to be used for the purpose of securing the best possible illumination of the interior of the larynx for the detection of every possible bit of diseased tissue. (2) Before he begins the removal of the growth the whole side of the larynx to be operated on should have applied to it a five-per-cent. solution of cocaine, for the purpose of contracting the capillaries on that side and preventing parenchymatous bleeding, which otherwise is sure to interfere with and greatly prolong the removal of the growth proper, while at the same time it may allow suspicious portions to remain behind.

The importance of the two above mentioned measures is strongly insisted upon. The field of operation having been thus prepared, the diseased soft tissues are thoroughly removed to at least half an inch from the periphery of the growth, and if necessary the underlying cartilage is scraped or even removed, the base being firmly scraped with a sharp spoon. The use of the galvano-cautery will seldom be required. Every source of bleeding having been stopped, the whole interior of the wound is dusted with pulverized iodoform, or with iodoform and boric acid in equal parts, and the tampon cannula is immediately removed. The whole of the wound is then covered with cyanide or iodoform gauze.

In cases where the more extensive resection of the thyroid or even extirpation of one-half of the larynx is contemplated, the parts of cartilage to be removed should be freed from their perichondrium and from the surrounding soft parts by means of an elevator. In other respects the operation is the same, only more extensive than mere thyrotomy with removal of soft parts. It is generally not necessary to prophylactically ligate the laryngeal arteries. Where the epiglottis or the aryteno-epiglottidean folds are diseased, the best means of access to them is subhyoidean pharyngotomy.

For after-treatment, both Wagner and Butlin immediately remove the tampon cannula, and from that time use no tracheal cannula whatever; and the wound having been dressed, as above described, the patient is not propped up in bed, but is placed horizontally on the side corresponding to the half of the larynx operated on, with one small pillow under the head. Instead of plugging the wound with gauze as formerly, Mr. Butlin dusts it at least twice daily for the first few days with the antiseptic powder by means of a powder insufflator. The application can be made to the best advantage when the patient is swallowing, as during the act of deglutition the wound in the neck is separated sufficiently to admit the end of the powder-blower, so that the powder may be thrown directly against the raw surface, which should be thoroughly covered by it. The external covering of cyanide or iodoform gauze

should be removed as often as wet by secretion. Although nutrient enemata may be required for the first few days, the experiment may be tried on the day of the operation, or soon thereafter, of allowing the patient to attempt to drink a little water while leaning with the upper part of the body well over to the edge of the bed. In case of any impediment to the closure of the larynx during this act, the water will run directly out of the wound and no harm result. Should the experiment succeed, milk may at once be taken in the same way, and the necessity for rectal feeding be avoided. The external wound gradually closes by granulations, which may have to be stimulated by applications of nitrate of silver.

Turning now to the method of operation classified as No. 2, we find that a distinct advance has been made in the treatment of cases requiring complete extirpation. It was first proposed and practised by Prof. J. Solis-Cohen, of Philadelphia. The patient upon whom he originally employed it in 1892 is still living and well. In this operation, as in several similar to it, the larynx was completely removed and the severed ends of the trachea brought to the external edges of the cervical incision and there retained, communication between the lungs and the pharynx being thus totally and absolutely cut off. The great advantages of this plan over the usual methods are:

1. The danger to life from inspiration pneumonia is greatly lessened, owing to the shutting off of the mouth from the trachea.

2. Swallowing is accomplished with great ease and as freely as under ordinary circumstances.

3. In at least three cases thus operated upon, the power of phonation has been acquired with a voice fully as satisfactory as that produced by any artificial appliance, and without either the inconvenience and discomfort of an artificial larynx or the danger to the adjacent parts from the irritation of its presence. The mechanism by which phonation is accomplished in these extraordinary cases has not been explained. Cohen's patient is able to make his voice distinctly heard from one end to the other of the great hall of the New York Academy of Medicine.

4. The comfort of the patient is greatly increased, and the disfigurement of the other operation and the wearing of the artificial larynx largely done away with. It is entirely probable that under certain conditions this method will prove to be the most satisfactory for complete laryngectomy of any yet proposed, and it is to be hoped that it may be given a sufficient trial to prove whether or not the cases already reported have been but a result of a happy accident rather than the first illustrations of a definite rule.

As to the third variety of operation, it has often been insisted that in order to insure success malignant disease of the larynx must be treated as early in its history as possible, and at least before involvement of the neighboring glands has taken place. Unfortunately, in the history of the past early operation has not always saved life, but on the other hand several eminently successful cases have been in patients who suffered from a tolerably extensive condition of disease. The management of cases of extensive laryngeal disease, therefore, becomes a matter not only of great importance but of lively interest, especially when it is remembered that perhaps a majority of patients are not seen by the specialist or surgeon until the disease has made considerable progress, and the time most favorable for operation has passed.

Several years ago operations were attempted upon such patients with only here and there an exception to the inevitably and immediately bad result. Subsequently they were generally left to their fate. Of late, under the influence of improved methods and increasing knowledge a hope—a small hope indeed, but worthy of all encouragement—has been aroused by the excellent work of several men. Prominent among these may be mentioned Mr. Watson Cheyne, of King's College Hospital, London, whose efforts in this direction are now attracting much attention, and who in his admirable Lettsomian Lectures (*Lancet*, Feb. 15 and 22, and March 14, 1896) upon "The Objects and Limits of Operations for Cancer," delivered before the Medical Society of London last February, says: "As compared with cancer in the breast, the disease in the throat is in some ways more favorable for cure; in other ways less so. Primary disease of the breast is by far the more favorable of the two, for there it is fully exposed to view, and there is plenty of room for its free removal without endangering important structures. In the mouth and throat, on the other hand, the disease is close to if not involving many important parts, the space in which one has to work is very limited, any considerable margin of healthy tissue cannot be obtained, and the early spread of the cancer to muscle tends to distribute it over considerable area. In the

throat, moreover, the disease is much less favorable for operation, because the septic elements come into play, and thus instead of having to do with an operation in the breast where the mortality is practically *nil*, we have to face very considerable risk of death from septic disease. On the other hand, cancer of the mouth and throat is more favorable as regards the glandular deposits, for in the neck we have an extensive glandular area exposed to view which can be much more thoroughly dealt with than in the case of the breast. It is true that many surgeons look on the glandular trouble as a most serious part of the disease. With this I do not agree. In another respect, cancer in the throat is more favorable than in the breast, namely, that in it metastatic deposits are infrequent."

As to the neighboring lymphatics, Cheyne believes that they should be removed as in cancer of the breast. It is seldom that no enlarged lymphatic glands can be felt in these cases, and usually they are of considerable size. Whether they can be felt or not, the lymphatic area should be cleansed out. Unless the lymphatic enlargement is very extensive or adherent to a variety of structures in the neck, and not merely to the sheaths of the vessels, the operation will be more thoroughly done and the patient will have a better chance of recovery and cure if enlarged glands are already present.

With regard to preliminary tracheotomy, Cheyne, agreeing with many other excellent authorities, does not believe in the insertion of the tube several days prior to the performance of the main operation. Personally, the author does not think his ground upon this question well taken, the objection being that in three or four days after the insertion of the tube there will be a collection of septic matter around it which may get into the trachea after the performance of the main operation. Such an accident could probably be avoided by extending the time between the two operations to ten days or more. It is desirable, however, that this question—namely, when preliminary tracheotomy should be performed—should receive more careful attention than has hitherto been accorded it, as it is without doubt an important factor in the patient's welfare.

These three varieties of operation just described may be said to finally represent the most recent additions to our present resources for the surgical relief of malignant disease of the larynx.

Turning now to the statistics of these and similar operations performed upon the larynx, we find according to a recent valuable article published by Schmiegelow, of Copenhagen, in *Gougenheim's Annales* for April, 1897, that during the past six years the mortality resulting from extirpation of the larynx has been materially diminished. Thus up to 1880, according to Holmer, the mortality was forty-two per cent. Tauber reports a rate of sixty per cent. following total extirpation of the larynx between 1866 and 1890. Between 1880 and 1888 Schier found that the rate had fallen to thirty-four per cent. Since 1890, however, the reports are much more hopeful, for the same observer finds that the rate during that period has been reduced to twenty-two per cent. Schmiegelow, carrying the reports up to the present time, finds that the percentage of cures since 1890 has been 13.5 per cent., and of immediate mortality 18.7 per cent.

FRACTURE OF THE PATELLA; AN ARTIFICIAL JOINT.

Dr. A. M. PHELPS recently presented a patient to the Section on Surgery of the New York Academy of Medicine who had sustained a fracture of the patella the first week of last August. He went to St. Vincent's Hospital, and was treated there and discharged. In the second week of October he again fractured the patella, and was sent a week later to the City Hospital. When seen a few days later the limb was enormously swelled and the joint filled with fluid. The appearances were those of purulent effusion. Accordingly on November 7 Dr. Phelps operated on him. The case was presented because of the novel procedure adopted.

On opening the joint it was found that the synovial sac had been totally destroyed, that the cartilages of both the tibia and fibula had been almost entirely destroyed, and that complete excision seemed necessary. After he had succeeded in removing all of the diseased structures, the parts looked so much better that he resorted to a procedure used by him in two or three cases—*i.e.*, the endeavor to restore a normal joint by interposing some of the soft tissues between the ends of the bones, thus preventing the contact of bone with drainage. The patient was lost sight of for a time, but returned recently with the function of the joint preserved.

Dr. Phelps said that the reason he had resorted to this procedure in the present case

was that in operations for angular deformity of the hip he had succeeded in obtaining a very good artificial joint. Last fall he had adopted the same plan instead of amputation in a case of ankylosed finger. Two incisions had been made, one on either side of the finger, the bones divided, and then one portion was made convex and the other concave, so as to simulate the natural surfaces of a joint. The arterial supply having been left intact, he turned in the flaps of cellular tissue between the ends of the bones, and obtained an almost perfect result. He had also used this method in three cases of complete excision of the knee. In one done a year ago a fairly good motion had been secured; in another the result was bony ankylosis; and in a third case motion to an angle of about 15°.—*Medical Record*, Feb. 5, 1898.

SOME REMARKS ON RECTAL SURGERY.

An interesting paper appears on this subject in *The Lancet* of April 2, 1898, by THOMAS BRYANT. From a careful consideration of these cases of villous rectal growths the following conclusions seem to be reasonable:

That a villous growth of the large intestine is by no means uncommon, and particularly in women.

That when an adult is liable to attacks of abdominal straining, associated with the passage from the bowel of rice-watery mucoid fluid or thick mucus in any quantity, the suspicion of a villous growth should be excited.

When the straining is persistent, or relieved by only brief intervals, and the blood becomes mixed with the mucous discharge, the probabilities of a villous growth are much strengthened.

When prolapse of the bowels becomes constant, and this is attended with the discharge of bloody mucus or blood alone, careful search for a villous growth should be made.

The diagnosis becomes clear only when the growth appears with the prolapsed bowel at the anus or can be detected with the finger. In all cases of intussusception in adults the question of a villous or polypoid growth being the cause should be entertained.

A SUGGESTION FOR THE OPEN METHOD OF SUTURE OF OLD FRACTURES OF THE PATELLA.

BARKER contributes a valuable paper on the above subject to *The Lancet* of April 2, 1898.

The knee-joint is now so frequently opened both for injury and disease that all the details of the operation appear to the author to claim a very careful consideration. It is for this reason that he ventures to suggest a method of opening the joint where we propose to wire the patella for old fractures, which appears to him to offer many advantages over other methods commonly in use. Among these may be named the single vertical cut over the front of the patella, the H-shaped incision and the semilunar cut with the curve downwards as perhaps most in vogue. Each of these has often seemed to him to have certain disadvantages, the chief of which are, he thinks, as follows: The single median vertical incision doubtless gives free access to the fragments, but unless it is made very long the latter cannot be manipulated easily through it. It is, therefore, difficult to freshen the old cicatrized faces on both the upper and lower fragments either with saw or chisel. Moreover, in those cases intermediate between recent and very old fractures, where, say, a fortnight or three weeks after the accident we are called on to suture a broken patella, and where there is neither a fresh surface on the fragments nor as yet well organized fibrous tissue, but probably a quantity of half-organized blood and broken-down clot, we want more room for the removal of the latter and the cleansing of the cavity than we can secure through the vertical cut unless it be very long. But if it is extended the scar is in the line of pressure during kneeling and may be tender for an indefinite time. Besides this, the scar is less directly over the wire and may not bear the pressure of the latter without pain or even destruction of the skin. Finally, the cicatrix being in the middle line and probably for a long time at all events adherent to the parts beneath, there is less free play of the skin over the patella than there should be.

The H-shaped incision is not open to the first of these objections. It gives good access to all the parts involved both for wiring and removing blood, fibrous adhesions, etc., but the scar directly across the patella is as objectionable as that in its vertical axis in regard to adherence to the parts beneath and its relation to the wire, though it does not come so much in the way of kneeling. The semilunar cut with the curve across the ligamentum patellæ gives free access to the lower fragment, but not to the upper unless made very freely. The scar, too, lies in a position sure to be pressed upon in kneeling.

These several objections to the hitherto recognized methods of opening the knee-joint have frequently occurred to the author in former years, and have led him, in the last five or six cases in which he was called upon to suture the patella for old fracture, to adopt the practise now to be described, which he suggests is an improvement and which has certainly given him the best results, with much greater ease in operating than that found in the older methods. The aims of the procedure are to gain free access to the parts to be dealt with, with a minimum amount of cutting, and in such a way as to place the scar out of reach of pressure either from kneeling or from the knot of the wire; finally, to provide a good firm pad of tissue over the front of the patella and the uniting wire suture. The steps of the operation are as follows:

In the first place, the lower border of the upper fragment of the patella is made out by palpation as it is drawn down as far as possible by the thumb and fingers of the operator's left hand and steadied in the middle line of the limb. A curved incision is then made with its convexity upwards, beginning just below the level of the broken surface of the lower fragment, thence curving upward and crossing the middle of the upper fragment to end at a point on the opposite side of the joint corresponding with its point of origin. The tip of this flap is now dissected downwards to the broken surface of the upper fragment. The knife is then carried backwards across the face of the latter, clearing from it all fibrous tissue until the joint is open. Then the edge of the knife is turned forwards and placed on the posterior border of the broken surface of the lower fragment of the patella, and the fibrous tissue is similarly cleared from it. In this way all the fibrous matter previously uniting the fractured pieces is left attached to the deep surface of the middle of the flap and the remains of the patella bursa, but without disturbing the latter. The edges of the bone are then freshened with saw or chisel, the joint being protected meanwhile with a small sponge.

The author then passes the silver suture as follows: A stout-handled needle with an eye near the point (the same as that devised for his subcutaneous method of patellar suture) is thrust through the skin immediately under the lower border of the distal fragment. (The skin may be previously punctured with a knife.) It is then thrust through the ligamentum patellæ, scraping the border of the fragment in the middle line and passing behind both it and the upper fragment. When the point has reached the upper border of the latter it is made to pierce the attached muscles in the middle line of the fragment. Here it is threaded with stout silver wire and the needle is withdrawn, carrying, of course, the wire behind to the fragments; but when the point of the needle has cleared the lower edge of the lower fragment it is thrust in front of the latter under the flap until it can be unthreaded in the original wound. The wire now includes the broken fragments of the patella, the two free ends crossing in front of the gap between them. Each end of the wire is now threaded through a bar of steel twice, and with these bars in the hands a strong pull can be made upwards with the lower end and downwards with the upper, the latter being in the operator's right hand and nearest to him. By this strain the fractured surfaces are brought close together, aided by the fingers of an assistant. When it is seen that the adjustment is correct a few twists of the wire fasten the fragments securely. Then the wires are cut about half an inch from the twist and the ends are flattened down transversely. All clots should, of course, have been previously removed from the joint with a small sponge. The flap containing the skin, the remains of the bursa patellæ, and the fibrous material from between the fragments, is now laid down over the patella and forms a thick pad covering the wire. It is carefully stitched all round without any drainage, unless there is decided oozing, when each angle may be left without a stitch. But as a rule, if a soft elastic dressing is at once applied and firmly bandaged there is no accumulation of blood in the wound and no need for drains. No splint is required, and the patient is encouraged to gently move the joint in bed from the first; after the removal of the stitches on the tenth day he should be urged to do so. Besides this, massage should be employed daily all round the joint.

In the cases in which the author has employed this method primary union has been invariable, and the result has been more satisfactory than in those operated on by the other methods. In the author's first case—that of a powerful seaman—the strength of the bond of union between the fragment was so great that he returned to his calling and could do anything with the limb; and when about a year later he was put to

a great strain in heavy weather the opposite patella broke, but that with the wire round it still held firm. It might be objected to this method that the wire on the articular aspect of the patella would give trouble, but so far this has not been found to be the case; and, indeed, being perfectly smooth and more or less buried in the bone by the strain put upon it, this need hardly be expected. The saving of time effected by this method of throwing the wire round the fragments rather than by boring them is great. Moreover, to drill the bones exactly in the same places is very difficult, and the danger of splitting them in the process is not imaginary. Both these difficulties are overcome by the above method, which of necessity brings the fragments into the same plane and does not weaken them in the least.

The author would be very much interested, if other surgeons should adopt this method, to hear their opinion in regard to its merits. He has hesitated to dub it "a new method," being rather skeptical about anything nowadays being "new" in surgery. But so far his reading or observation has not brought any similar method to his knowledge. For recent fracture of the patella he sees no reason at present to depart from his method of subcutaneous suture, which he applies at once to every case he meets. This he has done between twenty and thirty times with good results, some of the cases having been already published.

NOTES OF A CASE OF PERFORATING GASTRIC ULCER; OPERATION AND RECOVERY.

The following case is reported by SHAW in the *British Medical Journal* of March 26, 1898:

Miss H., aged twenty, an assistant in a shop, had been suffering from gastric ulcer since September, 1896, and had at intervals been under medical treatment. On June 24, 1897, she was in the shop as usual, but was in great pain all day. Nevertheless her food on that day included rhubarb, strawberries, tomatoes, bread and butter, with tea. About 9 P.M., some four hours after tea, she suddenly felt acute pain in the stomach, rapidly spreading over the whole abdomen, but managed to walk home, a distance of two or three hundred yards, preferring that method to the jolting of a cab.

The author saw her at 11 P.M., when it was evident that perforation had occurred. The pulse was 120, the temperature 100°; liver dulness was still present, and there was no distention. The belly was too tender to elicit the presence of fluid. Consent was only obtained for operation in the morning, so she was put under morphine, and dry heat applied. Next day her condition was much more grave, but at 9 A.M., with the help of Dr. Ryley and Mr. Blake, the author operated.

An incision above the umbilicus, in the middle line, was made four inches in extent, and immediately the peritoneum was opened signs of the lesion were evident. Gas and fluid escaped, and large flakes of lymph were found, especially between the stomach and liver. The stomach was somewhat contracted, but not empty, and when drawn into the wound the ulcer was easily detected on the anterior wall, near the pyloric end. The edges were thin, ragged, and undermined, without evident induration; there was no large aperture, and evidently some slight attempt at repair had taken place, although the gentlest handling caused more of the contents of the stomach to escape. The ulcer was closed by a double row of Lembert sutures, and to afford further security a portion of omentum was also fixed over the weak spot. The lymph was removed by careful sponging, an incision made below the umbilicus, and the abdomen washed out with hot boiled water. It was necessary to repeat the flushing several times, as on passing a glass drainage tube into Douglas's pouch vent was afforded to nearly a pint of purulent fluid. The abdomen was then closed, several gauze strips being left in the upper wound, taking care that one passed up under the liver, and others proceeding directly to the line of sutures. Just as the dressing was completed vomiting occurred, so the stomach was immediately thoroughly washed out. The operation lasted an hour and a half, and was well borne, her condition being rather better than at the beginning.

The after-progress was uneventful. For two days she was very ill, but then commenced to improve. After the first day sips of hot water were given, and at the end of forty-eight hours small quantities of champagne and milk alternately were administered. Vomiting occurred once on the third day. During this time drainage, especially from the tube in Douglas's pouch, was very free. The gauze strips were removed on the third day, but the lower wound was drained for a week. At the end of a fortnight both wounds were soundly healed. The temperature at no time rose above 102°

F., and was normal in ten days. Menstruation, which for some months had been in abeyance, occurred on the third day after operation, and has since been regular. The patient was allowed up in the third week, and solid food gradually given. She has now (February 24) been at work for some months, and, excepting when indiscreet in diet, there is practically no pain.

The points of interest in this case seem to the author to be:

1. The ragged, undermined character of the ulcer, without induration or any large perforation.

2. The time after perforation (twelve hours) that the operation was successfully undertaken.

3. The necessity for thorough flushing and drainage, especially through Douglas's pouch.

4. The fact that such an operation could be satisfactorily and successfully performed in a small room of an ordinary lodging-house, at very short notice, and without skilled nursing being obtained either at the time of or subsequent to the operation.

Reviews.

THE GENESIS AND DISSOLUTION OF THE FACULTY OF SPEECH. A Clinical and Psychological Study of Aphasia. By Joseph Collins, M.D.
New York: Macmillan & Company, 1898.

This octavo volume of nearly 450 pages embodies the monograph of the author to which was awarded the Alvarenga prize of the College of Physicians of Philadelphia in 1897. The author's prefatory note denotes scientific accuracy, even if it does not show great business foresight, for he tells us that since the MS. left his hands in April, 1897, several important contributions have been made to our knowledge of aphasia, but that he has not had the time or opportunity to give them the consideration and discussion that they merit. Naturally this gives one a feeling of disappointment that he is not obtaining the best modern summary of the subject, but a careful examination of his pages shows that while complete studies of these new subjects have not been made, a sufficient number of verbal changes have been introduced by the author as he read the proofs to make the volume as worthy to-day of the prize which was awarded to it a year ago as ever. It is emphatically a creditable production to the author and to the American profession, and is written in an interesting, consecutive way which leads one from page to page with interest.

The volume consists of twelve chapters and two appendices. The first chapter deals with disorders of intellectual expression; the second with the history of aphasia; and then follows others upon the analysis of the genesis and function of speech, the conception of aphasia, the various forms of aphasia and its diagnosis, causation, morbid anatomy, and treatment, the final chapter dealing with the medico-legal aspects of aphasia. Appendix 1 deals with confusional aphasia and Appendix 2 with articulatory kinesthetic aphasia. A noteworthy part of the book is the copious and apparently accurately prepared foot-notes which indorse many of the statements made in the text. As a complete story of our knowledge of this interesting condition Dr. Collins' book deserves all praise.

ATLAS AND ESSENTIALS OF PATHOLOGICAL ANATOMY. By Dr. O. Bollinger. Volume II: The Urinary Apparatus, Sexual Organs, Nervous System and Bones. With Colored Figures and Plates. Price, $3.00.
New York: William Wood & Company, 1898.

The first volume of this Atlas we noticed with much pleasure and praise in the May issue of the GAZETTE. The present Atlas deals with equally interesting topics, is equally well executed, and exceedingly valuable, so that we can cordially commend both the text and the plates.

ACCIDENT AND INJURY: THEIR RELATIONS TO DISEASES OF THE NERVOUS SYSTEM. By Pearce Bailey, A.M., M.D.
New York: D. Appleton & Company, 1898.

We confess that we picked up this book with considerable curiosity born of the desire to know what field its author intended to cover, and we learn from the preface that his object has been to furnish a systematic description of the nervous affections which result from injury and fright and which are usually classed under the familiar term of the traumatic neuroses. The introduction consists in a discussion of the previous history of the patient and history of the accident, physical evidence of predisposition to nervous diseases, and a consideration of the examination as to actual injury. The rest of the book is divided into four parts. The first deals with organic effects of injury to the nervous system, the second with functional effects, the third with malingering, and the fourth with the treatment of traumatic neuroses, the volume closing with an index of names and an index of subjects. This

method of making an index of names is too infrequently resorted to in this country and is one of the valuable characteristics of foreign medical books. The volume is illustrated by no less than fifty-five black and white illustrations, many of which are taken from other authors, although quite a large number are entirely original. The book is evidently the result of a good deal of personal experience and contact with the class of patients described in its pages. Indeed, a peculiarity of these pages is the frequent insertion of accounts of cases with which the author illustrates his text. Most of the chapters are also finished by a fairly complete bibliography of the subject of which they treat. Only when the author goes far afield for his illustrations, as on page 314, do they prove worthless as additions to the volume. Amongst the various books which come to the editorial office of the GAZETTE this is one of those which is put aside for careful study, with the thought that much can be learned from it.

A TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By John J. Reese, M.D. Fifth Edition, revised by Henry Leffman, A.M., M.D., Ph.D. Philadelphia: P. Blakiston, Son & Company, 1898.

Old students of the University of Pennsylvania will remember that the author of this book had an elegance of diction and a clearness of expression which surrounded his lectures with a pleasing atmosphere over and above that connected with them by reason of their innate importance. Since Dr. Reese's death the difficult task of editing subsequent editions in such a way as to maintain the usefulness of this book has fallen to the hands of Dr. Leffman, who is well known as the pathological chemist to the Jefferson College Hospital and for the notable chemical analyses which he makes from time to time.

In the present edition we are told that very little has been added to the general principles of the subject, and that the new matter consists largely of reports of peculiar or difficult cases. The book is written chiefly with the idea that it will be of value to the medical man rather than to the lawyer, and it is not a laboratory manual nor a comprehensive work for experts, but a student's text-book and reference work for practitioners. The book is exceedingly well printed, on good paper with large type, heavily leaded, and is a credit to medical jurisprudence on this side of the water. That part of the book devoted to the consideration of poisoning and drugs seems to us of unusual merit.

Correspondence.

LONDON LETTER.

BY RAYMOND CRAWFURD, M.A. OXON., M.D., M.R.C.P. LOND.

The various medical societies are now shutting up shop for the summer—if we may dignify by that name the hyperborean climate in which we are struggling to exist; nor is there much of note to record from other medical sources. Last month Mayo Robson read a very valuable and instructive paper before the Leeds and West Riding Medico-Chirurgical Society on a "Method of Exposing and Operating on the Kidney without Division of Muscles, Vessels, or Nerves." We fancy that this method has been practised also in New York. Mayo Robson describes his procedure as follows: Starting from the inner side of the anterior superior spine of the ileum, the incision is carried back in a slanting direction towards the tip of the last rib. The fibers of the external oblique muscle and of its aponeurosis are split and retracted, so as to expose the internal oblique: this muscle is similarly split in a line between the ninth costal cartilage and the posterior superior iliac spine. The fibers of the transversalis can be dealt with along with those of the internal oblique. On retracting these muscles, the transversalis fascia is seen lying at the bottom of the lozenge-shaped aperture; this is incised, and the kidney exposed lying in the perirenal capsule of fat. The fingers will then readily work their way to the kidney itself, which can be grasped and freely manipulated by temporarily removing the retractors. In many cases the kidney can be brought clear out of the wound and explored. Mayo Robson detailed a number of cases in which a calculus was thus extracted and the wound sutured before returning the kidney into the abdomen. He claims many advantages for this method. First and foremost there is no weakening of the abdominal wall because the muscle fibers are not cut; also no vessels are cut, so that healing by first intention is favored. The absence of hemorrhage also means saving of time and diminution of shock from the operation. As no nerves are divided, there is no fear of paralysis of the rectus and other muscles. The operation is performed with the patient lying on his back, which, besides being much more convenient to the surgeon and anesthetist, saves a deal

of disturbance of the patient. The duration of convalescence is materially shortened; the patient can safely be allowed to sit up at the end of the second week, as there is no fear of the wound giving way. Lastly, in view of the frequent difficulty of diagnosis in renal surgery, it is satisfactory to have a method of exploration that involves next to no risk to the patient.

Mr. Mansell Moullin's paper on the "Treatment of Tuberculous Disease of the Bladder" gave rise to an interesting discussion at the Clinical Society. It cannot be said that at present either medicine or surgery is equipped with any adequate means of combating the condition. The various medical remedies are at least innocuous, but the same can hardly be said of the attempts of surgery to treat the disease by local applications. In the first place the bacilli are buried far too deeply to be affected by remedies, which at best can only touch the surface; and in the second place there is the danger of introducing septic organisms into the bladder. Mansell Moullin was in favor of early suprapubic cystotomy with a view to erasion or excision of the disease. One great objection to any operation in our mind lies in the fact that tuberculous cystitis is practically always secondary to tuberculosis elsewhere, usually in the genito-urinary tract, and most often in the epididymis or vesiculæ seminales. Another objection to operative interference is that tuberculosis of the bladder is nearly always latent, and gives no symptoms until the disease is too far advanced for removal; and even in advanced cases the examination of the urine more often than not gives a negative result. Mr. Freyer said that he had opened the bladder six times for tuberculous cystitis and had regretted it in every case but one, as the local mischief seemed to increase after the erasion, and the healing of the suprapubic wound habitually ran an indolent course. Over and above this, suprapubic cystotomy is not a measure to be lightly taken in hand.

The indefatigable editor of the *Practitioner*, Mr. Malcolm Morris, has sought to emulate his Jubilee number of last June by a similar June number this year devoted to the question of Tuberculosis in all its manifold medical aspects. The venture is in every way a great success, and the best thanks of the medical profession and of the community are due to the editor. The articles are contributed by a very select staff of writers, and will certainly be widely studied. In the outpatient practise of a metropolitan hospital one is constantly reminded of the frequency of the disease, and of one's utter inability to grapple with it. Yet one was hardly prepared to read that at least one-eleventh of the whole population of these islands dies of consumption alone. The post-mortem room, too, reminds one of how large a percentage carry some tubercular scar to their grave, though there may have been no suspicion of tubercular taint in their lifetime. To therapeutists the remarks by Sir Samuel Wilks and Dr. Hector Mackenzie in their respective contributions will be full of interest. Sir Samuel Wilks, from the experience of a lifetime, has come to believe very little in drugs even as adjuvants to Nature's great remedy, fresh air. Dr. Mackenzie says all that there is to be said for the few drugs on which we principally rely—cod-liver oil, creosote, and guaiacol. In skilled hands no doubt all of these are at times effective, but one sometimes doubts whether their stock use in hospital and dispensary practise is not productive of a balance of harm. However, something will have been gained if by their manifest inactivity they serve to clear the field for preventive treatment on the one hand, and for the establishment of suitable sanatoria on the other, within the reach of the destitute many as well as of the well-to-do few.

PARIS LETTER.

By A. R. Turner, M.D. (Paris).

The only event of any importance recently has been the Blanchard-Heim scandal. During the lifetime of Dr. Baillon, Professor of Natural History at the Faculty of Medicine of Paris, the assistant professor was Dr. Raphael Blanchard, son of the well known biologist of that name. A more recently appointed assistant professor was Dr. Heim, who likewise held the appointment of superintendent of the Laboratory of Natural History, in which medical students worked. Some time after Dr. Baillon's death, Dr. Blanchard was appointed professor of natural history and relieved Dr. Heim from the post the latter had held, taking charge of the Laboratory himself. He accused Dr. Heim of having misappropriated—in one word, stolen—microscopes and objects of value belonging to the Laboratory. The case was tried before a meeting of the Council of the

University, and though the result did not seem very definite, Dr. Heim was placed on the retired list. Dr. Heim has strongly protested in various ways against what he has termed a persecution due to personal enmity between himself and Dr. Blanchard. As the latter was previously unpopular with the medical students on account of supposed severity in examinations, and from the fact that he delayed for a considerable space of time the publishing of the second part of a work on Natural History, which the purchaser was compelled to pay for when buying the first part, the medical students did not neglect this opportunity of taking part against Dr. Blanchard, and thus relieving their feelings by a little noise. Accordingly when Dr. Blanchard undertook to deliver a course of lectures as professor of natural history, he was greeted with such howls and other marks of disapprobation that he was compelled to stop speaking, nor has it been possible for him to continue, notwithstanding the appeals and threats of the Dean of the Faculty himself. I may add that one is surprised to find in many instances how weak the power of discipline seems to be in the French faculties, above all when compared with what seems the unjust severity displayed on many occasions in the French secondary schools.

At a recent meeting of the Academy of Medicine Professor Dieulafoy described a case of syphilis of the stomach, in which the affection had shown itself with the symptoms of gastric ulcer. A recovery was readily obtained by an antisyphilitic treatment. Professor Dieulafoy stated that such observations were not frequent, and concluded by saying that they would be met with more frequently if thought of. They may assume the various forms of simple hemorrhagic erosions, of gummatous infiltration of the submucous coat, of circumscribed gummata, and of ulcerations and cicatrices of gummatous ulcerations. Dr. Dieulafoy looked upon the gastric juice as playing a certain part in the affection, by its action upon the ulceration, which it tends to irritate and enlarge. As the symptoms were identical with those of simple ulcer of the stomach, it was only by a past history of syphilis and the efficacy of an antisyphilitic treatment that a correct diagnosis could be made.

At the same meeting Professor Huchard, who has written several works on heart disease, and who is likewise known for his chauvinism, communicated a report by Dr. Combemale on the use of thallium acetate in the night sweats of tuberculous patients. It should be used with caution, as it may cause pains in the legs and complete alopecia.

At the Congress of Internal Medicine, held last April at Montpellier, some remarks were made by Drs. Ducamp, Sabatier and Petit which would tend to show that enteric fever cannot be caused by eating oysters coming from waters infected by the germs of that disease. From bacteriological researches made at Cette, a port on the southern coast of France, it would seem that neither the bacillus coli communis nor the enteric fever microbe were to be found in the oysters of the region, even when placed near the opening of a drain for an entire month, and that even after inoculation with Eberth's microbe, the latter soon disappeared, either from the action of the salt water, or because of the oyster's resistance.

Dr. Netter, assistant professor at the Faculty of Medicine of Paris, has drawn the attention of medical practitioners to the presence in Paris of a slight epidemic of cerebro-spinal meningitis. He reports five cases with autopsy observed at the Trousseau Hospital for Children. Drs. Siredey, Delpeuch and Fernet have likewise reported some cases occurring among adults. The differential diagnosis is frequently difficult, and in some cases it may be necessary to tap the lumbar region of the cord and to obtain the meningococcus from the fluid drawn.

In connection with this epidemic in Paris we may mention a similar epidemic observed at Athens by Professor Delyannis. This affection has so far occurred every year in the country around Athens, and during the past year some sixteen cases were observed from November to January. Professor Delyannis' *chef de clinique*, Dr. Assimis, recently gave a description of the disease in the *Presse Médicale*, as well as a report on the microbes discovered. Six cases were fatal, and two autopsies were performed. In most of the cases a frequent and characteristic condition was coma; albuminuria and labial herpes were likewise observed. Though in some cases the malady was not very severe, consciousness persisting throughout, in others the usual severe symptoms were observed.

The results of the two autopsies were as follows: Concurrently with the various signs of congestion found in most cases there was present a seropurulent exudation on the convex surface of the brain below the arachnoid, as well as on the under surface. On the

under surface of the cerebellum pseudo-membranous deposits were present. The coccus found in the pus did *not* resemble that of pneumonia, in that it was not pathogenic for the mouse.

Dr. Marfan, one of the most eminent of the French physicians devoting themselves solely to children's diseases, recommends the following methods of administering some of the drugs used in whooping-cough. Against the fits of coughing belladonna should be given as follows:

Syrup of belladonna (Fr. Ph.), 25 grammes;
Syrup of tolu (Fr. Ph.), 100 grammes.

For children under two years, one to two teaspoonfuls daily; for children from two to three years of age, four teaspoonfuls daily; and for children from five to six years old, six teaspoonfuls. Give the above doses to begin with, and increase the dose regularly by one-half teaspoonful daily, until the fits of coughing diminish or at least there be signs of intolerance, such as dilatation of the pupils, dryness of the throat, redness of the cheeks.

Dr. Marfan considers the above drug to be most useful in some cases, but as necessitating care in its use. He considers antipyrin to be more easily employed in children, and recommends the following formula:

Antipyrin, 3 grammes;
Syrup of orange flowers, 20 grammes;
Distilled water, 100 grammes.

One teaspoonful of the above mixture contains ten centigrammes of antipyrin. Under two years twenty centigrammes may be given; from two to five years, fifty centigrammes; and from six to ten years, one gramme. The maximum doses should be respectively *one*, *two* and *three* grammes. Each daily dose should be given in three parts, at regular intervals.

Antipyrin should *not* be used when there is danger of catarrhal pneumonia, on account of its depressing effect.

Bromoform would seem to be a good preparation, and may be used in the following manner:

Bromoform, 7 grammes;
Sweet almond oil, 30 grammes;
Gum acacia, 30 grammes;
Syrup of orange flowers, 40 grammes;
Cherry-laurel water (Fr. Ph.), 10 grammes;
Distilled water, q. s. to 300 Cc.

The initial doses are as follows: Children under six months, two to three drops; children from six months to a year, three to four drops; children two years old, eight drops; children three years old, twelve drops; sixteen drops at four, and twenty to thirty drops after five years. A daily increase should be made of from two to three drops, and this is absolutely necessary in order to obtain favorable results.

Bronchial infection should be prevented by antiseptic precautions, such as washing out of the mouth, antisepsis of the nose, treatment of all lip sores and forms of rhinitis.

BERLIN LETTER.

By James J. Walsh, Ph.D., M.D.

A noteworthy contribution to the literature of appendicitis is the article on the subject in the third part of Nothnagel's Diseases of the Intestine and Peritoneum, which has just appeared as a volume of the system of Special Pathology and Therapy, of which the great Vienna clinician is editor. For views as to appendicitis are quite as widely divergent over here in Europe—let us rather say more so—as in America. Its treatment is a point on which surgeons and physicians agree to differ even more than across the ocean.

On my way up from the German Congress for Internal Medicine at Wiesbaden, I stopped off at Jena, and heard a medical clinic and a surgical clinic on appendicitis. Professor Stintzing, the director of the medical clinic, is the editor, with Professor Penzoldt of Erlangen, of a System of Therapeutics that, despite its four-volume size, has reached a second edition in two years. He is known as a most conservative but a most successful therapeutist. He was just passing around the stool of a case of appendicitis that had been under treatment for twelve days in the wards under opiates. It was the first stool the patient had had since his admission, and Professor Stintzing said that he did not feel the least alarm if patients on the strictly limited diet required in these cases should not have a stool for fourteen or fifteen days. There was very little accumulation of fecal matter, and the thing above all to be avoided was the disturbance of Nature's protective adhesions by any increase of peristalsis. He scouted the idea that a purgative or salines should ever be prescribed in appendiceal cases. He considered it an utter misapprehension of the indications to employ them, and the statistics of the comparative mortality and morbidity of cases in which constipation or diarrhea had been present he could only stigmatize as one of those misapplied coinci-

dences of figures which have always worked so much harm in medicine, especially in therapeutics. As to the claim that appendicitis was a surgical disease, he considered it a specialist's pretension, and as such always sure to be exaggerated, especially when the significance of an ailment is first brought into prominence. The great majority of the cases, he thinks, run a benignant course and get well under purely medical treatment.

Across the hospital yard Professor Riedel, the director of the surgical clinic, could only say that all appendicitis, and all acute affections of the right iliac fossa, are surgical cases. The symptoms of acute inflammation to his mind always pointed to the existence of pus, and where pus was present the medical man must give place to the surgeon. He showed three cases of recurring appendicitis in which so-called medical cures had been effective in previous attacks; in all three operation disclosed the presence of walled-off abscesses, in one in fact of multiple foci of purulent inflammation, micro-organisms having found their way along the lymph paths and blood-vessels of the mesentery to infect distant parts of the peritoneum. There was a wonderfully homelike feeling created by this difference of opinion. It would be strikingly familiar, I think, to any American fresh from the benches of the medical societies at home.

Nothnagel's views, then, in the work which is supposed to sum up European medical opinion at the end of the century, are of special interest. His conclusions are practically a medical capitulation all along the line. For the terms typhlitis, paratyphlitis, etc., he finds scarcely any *raison d'être*. Inflammatory affections of the right iliac fossa are practically always due primarily to the appendix. His fine etymological sense (any one who has heard his clinics could scarcely help being struck by his easy, wonderfully simple and sympathetic style) will not permit him to accept the word appendicitis. To replace it he suggests "skolikoiditis." He considers that the primary stercoral typhlitis of the older authors is extremely exceptional. The acute symptoms of skolikoiditis he thinks with Sahle point nearly always to inflammation so acute that it probably is or will be purulent. A surgical consultant is practically always to be called. Eighty per cent. of the cases will get better on medical treatment, but since the etiological importance of a collection of feces in the cæcum as the origin of the disease is no longer to be admitted, not purgatives but opiates must be given. He prefers, and this is a special remark made by many prominent clinicians over here when they suggest opium, the extract of the drug to any of the alkaloids, and especially to morphine. Nothnagel thinks that there need be no uneasiness if the patient should not have a stool for six to eight days.

Two interesting questions are touched upon—the family tendency to appendicitis, which has now been noted so often that it is generally admitted, and the question of the possibility of epidemics of appendicitis, two of which have so far been reported. The article is a masterly study of the interesting question, on which American workers have contributed more than any others, to make the present position of general medical opinion.

Professor Heubner gave the other day the practical results of some experiments on the therapeutic influence of phosphorus in rickets, which have been conducted in his clinic. The division of opinion in various pediatric clinics of Europe as to the value of phosphorus in the disease is most striking. The last two prominent writers on the subject —Comby and Hagenbach—hold exactly opposite views. The one finds it useless, the other a specific. Phosphorus fed to animals produces an increased bone formation, and if enough lime salts are not furnished in the food, then what would be new formed bone is only cartilaginous matter. Existent bone becomes denser. Rachitis does not, however, merely produce defective bone formation; it, like phosphorus itself, sometimes produces an excess of bone, or in defect of lime salts an excess of cartilage. There are, however, a series of rachitic bone lesions that are the expression of defective bone-making and are represented by an osteoporosis of the skeleton. These forms are much more common in certain parts of the country than in others. For instance, the descriptions of pathologists in Vienna and in certain parts of Southern Germany show that osteoporosis is a very common lesion. In these parts naturally phosphorus enjoys the reputation of a specific. Except in these cases, however, it is only as a tonic alterative that phosphorus does any good, and its results are only satisfactory in a small proportion of the cases. It seems possible, however, by knowing the ordinary bone lesions of rickets in a district, to be able to tell whether phosphorus will be of benefit or not.

A very interesting attempted application of phagocytosis to surgery is the effort to "fight pus with pus," that is being tried in a number of places in Germany now. Non-micro-organismal pus, that produced by the chemotactic influence of turpentine for instance, is called into action around a focus of chronic inflammation, with the result, so observers claim, that the active phagocytes put an end to the chronic inflammatory process, by consumption of the bacteria and their products. It is even claimed that the action of many so-called antiseptics lies not in their bactericidal qualities, but in their irritation, calling to the spot white blood-corpuscles that act as phagocytes.

ROME LETTER.

By Dillon Carberry, M.D.

Within the past month the security of foreign medical men practising in Italy has been assured. A letter to Lord Salisbury from Sir Clare Ford, the British ambassador here, indicates that the agitation is at an end, and that no steps will be taken by the Italian Government to alter the existing laws in regard to foreign practitioners. This conclusion to what seemed, at one time, a serious crusade against the foreigners, cannot but be gratifying to them, while it is not considered unjust by the more liberal of our Italian *confrères.*

Dr. Pietro Pagello, who died lately in his ninety-first year at Belluno, was a curious example of the capricious dealings of fame. It may be remembered that it was he who treated Alfred de Musset at Venice for what the poet in his diary calls cerebral fever; for the skill of the Doctor in curing this anomalous ailment the recovery of his patient must vouch; but it was his romantic liaison with Georges Sand (which led to her rupture with de Musset) that placed him in the niche of notoriety.

Another recent death, that of the Honorable Cavallotti, though no less suggestive of romance, from its connection with that curious medieval survival the duel, has points of interest for the surgeon or the medical jurist. The conditions of the encounter, based on medical knowledge, were unusually severe; the wrist and forearm of each combatant being protected by tough leather gauntlets, so as to prevent the possibility of a mere wounded radial or severed tendons from causing a cessation of the fight. The swords are always sterilized by the surgeons in charge, and should one of the duelists drop his point so as to touch the ground the fight is stopped until the point has been freshly antisepticized. The wound that killed Cavallotti was punctured and incised, as the swords were double-edged and pointed, making a most severe wound. The sword point entered the mouth through a gap left by the absence of three teeth; it sliced the tongue, divided the epiglottis, and opened the internal carotid. In an incredibly short time Montenovesi, the surgeon, succeeded in tying the left common carotid; but Cavallotti died within five minutes of the giving of the blow, curiously enough from asphyxia, due partly to spasm of the glottis, partly to escape of blood into the air-passages.

The Italian law punishes the duelist in proportion to the extent of the wounds inflicted; thus a wound that takes ten days to heal will condemn the giver to three months' imprisonment, while six months is the lot of one who inflicts a wound that refuses to heal in less than twenty days. Homicide is comparatively cheap; it costs five years.

The new antipneumonic serum of Pane comes in for a good deal of attention in these days, as very encouraging results are reported from Naples, where its use is warmly advocated by De Renzi. The value of the serum is undergoing active investigation in the Roman hospitals, and many authorities speak favorably of its action. In the medical section of the Policlinico Professor De Renzi, who has been the first to use the new serum, publishes a series of observations. The antipneumonic serum, he tells us, is prepared by immunizing asses and cows with very large doses of a most virulent culture of the pneumococcus. The injections of the serum are always followed by a marked fall in the temperature, pulse, and respirations. Although the general condition of the patient is much improved, the local lesions do not heal in any shorter period. Out of thirty-three patients treated, three only died; whilst the mortality amongst other patients reached twenty-four per cent. It is fair to note that only grave cases were selected for treatment where clinical instinct suggested an unfavorable prognosis.

De Renzi does not consider the action of the toxins to be very evident in the clinical picture of pneumonia, although he cannot deny their existence; he is persuaded that the toxic effects are not due to the direct

action of the virus. His opinions are founded on an observation of splenic tumors and hepatic swelling as not infrequent though not constant phenomena in the disease, and on the fact that the diplococcus in pure culture does not produce a very appreciable quantity of toxins. A careful observation of the blood-pressure in many cases has led him to believe that the process in pneumonia is sthenic before and asthenic after the occurrence of the crisis. He concludes by prognosticating that the serum must prove useful in treating the various manifestations of the action of the diplococcus, such as meningitis, pleuritis, and suppurative arthritis; but he thinks unfavorably of preventive inoculations owing to the short duration of the immunity conferred.

At a late meeting of the Associazione dei Medici e Naturalisti in Naples, Professor Pane added something to our knowledge of the morphology of Fraenkl's coccus. He has observed that the capsule of the coccus becomes more apparent as the disease advances; it is not seen in the cocci found in the spleen of infected animals killed during the first two days; it is well marked where the germs have been cultivated in the anti-pneumonic serum. For these reasons he believes that the appearance of the capsule represents a phenomenon of degeneration.

The whole question of the Pane-De Renzi serum was discussed at the last meeting of the Società Lancisiana degli Ospedali di Roma. Dr. Stefanucci-Ala's opinion was unfavorable; he doubted whether it was possible to provide a curative serum for pneumonia. Several distinct germs, that of influenza, to wit, the pneumococcus, the pneumo-bacillus, as well as other germs, were capable of producing pneumonia. Could the serum be active against each and every one of these? The non-acquirement of immunity by a previous attack militated against the presumed value of the serum. His observations, limited to three cases, of which one died and the others recovered, were not satisfactory, as the action of the serum was not marked. To this Stagnitta replied that while he agreed with Stefanucci, that many dissimilar germs, such as the pneumo-bacillus of Fraenkl and Frobenius, the bacillus of Eberth, that of Pfeiffer, and even a mold such as the aspergillus, were all capable of causing a croupous infection of the lung, with all the characteristics of genuine pneumonia, still at least ninety per cent. of the cases of croupous pneumonia proper must be attributed to the action of the diplococcus lanceolatus of Fraenkl; it was to these cases alone that the new serum was applicable. As regards immunity he, agreeing with Silva and the Klemperers, was assured that what was expected from a serum was not so much immunizing as antitoxic properties; these the serum undoubtedly had. Dr. Gamba recorded four successful cases, and Concetti two unsuccessful. Several others spoke, the sympathy of the assembly being in favor of the use of the new serum.

In the current number of the *Supplemento al Policlinico* Sanarelli, the discoverer of the bacterium icteroides, publishes a review of his first experiments with his curative serum for yellow fever. The preparation of the serum differs somewhat from that of the more common antitoxins in this particular, that it occupies a much longer time on account of the exceptional difficulty which animals have in tolerating large doses of the virus; with a continuous intensive treatment in the horse it takes from twelve to fourteen months to procure a serum of sufficient strength. So far Sanarelli has been unable to discover any antitoxin in the blood of the immunized animals; his serum is a germicide, not an antitoxin; to be of service it must be used promptly. Sanarelli disagrees with Sternberg in the theory that the intestinal tract is the seat of the bacteria, and concludes that anuria, or diminished renal secretion, with albuminuria is much more typical of fatal cases than hemorrhages or black vomit. Finally, any curative efforts are in vain when symptoms of uremia are present.

The first experiments on eight patients proved these contentions; four, who were already anuric, died, the others recovered. The next series of observations was compiled at San Carlos do Pinhal, in Brazil, where a violent epidemic was raging. The serum used was that of a horse, and its intrinsic harmlessness was demonstrated in the person of the discoverer, who injected large doses, as a preventive, into his own body without suffering any unpleasant consequences. Of eight cases treated by subcutaneous small doses repeated, two died. It was then decided to practise intravenous injection of large doses, the "intensive" method; of fourteen patients so treated, four died. In all, out of twenty-two cases six only were lost.

Sanarelli is unwilling to deduce a statistic from these figures, but he draws attention to

the fact that the prevailing epidemic was of the severest type, with a mortality of over eighty per cent.; that all the cases treated were of a typical and severe nature; and that the presence of the bacillus icteroides was often demonstrated in the blood of patients during the course of the experiments. The preventive value of the serum was demonstrated in the case of the prison at San Carlos, where four cases of yellow fever had followed in rapid succession. The hygienic surroundings were *nil*, the inmates occupying one common chamber. No further cases were reported after the vaccination, although the fever continued to devastate the surrounding district.

A great deal has been already written about renal lesions in malarial infection, yet a recent memoir published in the medical section of the Policlinico by Rem-Pecci, professor of medical pathology in the University of Rome, brings a certain amount of new material into the literature of this subject. Taking his position at the point indicated by Thayer and Hewetson (*Johns Hopkins Hosp. Rep.*, vol. v, 1895), he continues his observations—extended over many years—and deduces the following conclusions: (1) Malarial infection is capable of producing true renal lesions, but the number of such cases is small; in Rome, the complication is more prevalent amongst the young, and during the autumn. (2) All forms of acute and chronic renal disease, save the contracted kidney, may be produced by malarial poisoning; the attack is light as a rule, and of the catarrhal, desquamative or tubular type; it is readily cured, but if neglected may easily decline into a chronic form. (3) The renal lesion may appear during an attack or after; the post-malarial onset has a special significance to the physician, who must bear in mind the possibility of the occurrence of nephritis after the cessation of the fever. (4) The causation of these lesions is to be attributed to the irritation consequent upon the elimination of toxic elements and not to the plasmodium which, according to Baccelli, is pyrogenetic, not pyogenic.

The treatment advised by Rem-Pecci is based on the free use of quinine, where the fever is active. He recommends a combination called Baccelli's mixture; it consists of sulphate of quinine, tartrate of iron and potash, arsenous acid, and water. Hemoglobinuria, he admits, may be one of the concomitants of cinchonism—never hematuria nor albuminuria. Bleeding from the dorsal veins of the foot, as advocated by Baccelli, is very useful in the hemorrhagic and other acute forms.

Professor Rem-Pecci quotes the history of the subject *in extenso* and gives the notes of over thirty cases.

The use of phenic acid in cases of tetanus, devised by Baccelli some years ago, has many upholders here. Dr. Ascoli, at a late meeting of the Royal Academy of Medicine, made an astonishing comparison between the relative values of the serum of Behring and Tizzoni, and the cure by phenic acid. The cases so far reported give the following results:

Treatment by Tizzoni's serum, died, 8 in 40.
Treatment by No. 1 Behring serum, died, 4 in 40.
Treatment by No. 2 Behring serum, died, 2 in 9.
Treatment by phenic acid, died, 1 in 30.

Leaving a considerable balance in favor of the carbolic treatment. There is a great tolerance for the drug in tetanus, and the use of large doses is indicated. For injection subcutaneously a three-per-cent. solution is used; the dose varies from one-half to ten grains; the maximum dose for the twenty-four hours seems to be forty-five grains. Local baths may also be used with advantage.

It is a pleasure to learn that during the terrible days of the Milan riots the medical profession was not found wanting at its post; and great praise is given by all to the heroism of the civil and military surgeons, who took an active part in tending the dying and wounded. The Ospedale Maggiore, where the greatest number of the wounded lay, bore the brunt of the work. In spite of this Professor Porro, of that hospital, was mobbed at the gates; but he turned upon the crowd, faced the shouting rabble, and compelled them to give way by the mere influence of his personal courage and determination. The hospital was guarded by the military subsequently. No official report has appeared as to the number of dead and wounded; the former may be over 200 and the latter possibly near 1000.

One of the most ghastly scenes in the riots occurred near Bari. Here Dr. Brandi, the poor-law officer of the district, was assaulted by the mob, chased into his house, and subsequently torn limb from limb (*sic*) by the villains, in the presence of his wife, who was dying from heart disease. His house was then burnt to the ground, the poor lady being carried into a cellar adjacent, where she shortly afterwards expired.

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